



Adroddiad Ymchwiliad

agorwyd ar 28/2/2017

gan

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Arolygydd a benodir

Gan Cymru

cynorthwywyr gan

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Dyddiad. 21 Medi 2018

Report of the Inquiry

opened on 28/2/2017

by

W S C Wadруп

BEng (Hons), CEng,

MICE, FCIHT.

an Inspector appointed

by the Welsh Ministers

assisted by

A McCooley

BA, MSc, MRTPI.

Date. 21 September 2018

M4 CORRIDOR AROUND NEWPORT (M4CAN)

**Inspector's Report on the Public Local Inquiries
which were held at the Lysaght Institute, Newport
between 28 February 2017 and 28 March 2018.**

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CONTENTS PAGE

- Glossary of Abbreviations used in this Report	Pg. 05
- Preface to the Report	Pg. 08
- Case Details	Pg. 09
- Summary of Recommendations	Pg. 13
Main Body of the Report	
- Section 1. Preamble to the Main Body of Report	Pg. 14
- Section 2. Procedural and Legal Matters	Pg. 22
- Section 3. Description of the Surroundings	Pg. 38
- Section 4. The case of the Welsh Government	Pg. 40
- Section 5. The cases of the Supporters of the scheme	Pg. 105
- Section 6. The cases of the Objectors to the scheme and and the Welsh Government Responses to those objections:	Pg.122
Statutory objectors who attended the Inquiry	Pg. 126
Non-Statutory objectors who attended the Inquiry	Pg. 198
Written Objections from Statutory Objectors	Pg. 278
Written Objections from Non-Statutory Objectors	Pg. 302
- Section 7. Proposed Alternatives: the cases for and against the alternatives	Pg. 339
The Outcome of the Inquiries	
- Section 8. Conclusions	Pg. 365

Appendix to the Report

1. Annex A to the Report – Appearances at the Inquiry
2. Annex B to the Report – Answers to questions tabled at the Inquiry (PIQ)
3. Annex C to the Report – Documents produced for/during the Inquiry (ID)
4. Annex D to the Report – Modifications proposed by the Welsh Government to the Draft Schemes and Draft Orders
5. Annex E to the Report – List of withdrawn or duplicate objections

GLOSSARY AND ABBREVIATIONS

The following abbreviations have been used throughout this report.

aadt	Annual Average Daily Traffic flows (over a 24-hour period)
ABP	Associated British Ports
AIES	Assessment of the Impact on European Sites
AQMP/A	Air Quality Management Plan / Area
BCR	Benefits to Cost Ratio for the Scheme and Alternatives
BCT	Bumblebee Conservation Trust
CAN	Corridor Around Newport
CD	Core Document – prefix for documents deposited in the inquiry library
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Mitigation Plan of WG
CPO	Compulsory Purchase Order
CPRW	Campaign for the Protection of Rural Wales
CRF	Control Reference Flow – a measure of motorway capacity
DMRB	The Design Manual for Roads and Bridges of the Department for Transport and WG
EIA	Environmental Impact Assessment
ESR	Ecosystems Services Report/ Assessment (ID 186)
ES/ESS	Environmental Statement /Environmental Statement Supplement
EWA	The Environment (Wales) Act 2016
FoE	Friends of the Earth Cymru
GL	Gwent Levels
GLVIA	Landscape Institute (& IEMA) Guidelines for Landscape and Visual Impact Assessment 3 rd Edition
GWT	Gwent Wildlife Trust (also covers Wildlife Trusts Wales)

IAN	Interim Advisory Note (part of DMRB)
ID	Inquiry Documents – prefix for documents produced during the inquiry
LDP	Local Development Plan e.g. for Newport or Monmouthshire
LSE	Likely Significant Effect under the Habitat Regulations
MSA	Motorway Service Area i.e. Roadchef/Rontec MSA at Magor
NMU	Non-motorised user - pedestrians, cyclists & equestrians
NRW	Natural Resources Wales
PCB	Polychlorinated Biphenyl – waste associated with the Solutia Works
PIQ	Public Inquiry Questions raised during the Inquiry with submitted answers
PMA	Private Means of Access to land or premises
PROW	Public Rights of Way
PPW	Planning Policy Wales Edition 9 (extant Version at time of the Inquiry)
Ramsar	Wetland sites of international importance under the Ramsar Convention
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation (European Designation)
SAM	Scheduled Ancient Monument e.g. Standing Stone at Undy
SACTRA	Standing Advisory Committee on Trunk Road Assessment
scheme	The M4 Corridor Around Newport Scheme – subject of the inquiry (M4CaN)
SDR	Southern Distributor Road, Newport (A48)
SIAA	Statement to Inform an Appropriate Assessment under the Habitat Regulations
SINC	Site of Importance for Nature Conservation
SOCG	Statement of Common Ground

SRO	Side Roads Order
SSSI	Site of Special Scientific Interest (located across the Gwent Levels)
TAN	Technical Advice Notes (supplement Planning Policy Wales)
TAN 5	Technical Advice Note on Nature Conservation and Planning
TAN 15	Technical Advice Note on Development and Flood Risk
TAN 18	Technical Advice Note on Transport
VPD	Vehicles per day
WBFG	The Well-being of Future Generations Act 2015
WebTAG	Department for Transport Appraisal Guidance
WelTAG	Wales Transport Appraisal Guidance
WG	WG
WTA	Water treatment area

Relevant Legislation referred to in this report

The Highways Act 1980

The Acquisition of Land Act 1981

The Wildlife and Countryside Act 1981

The Planning (Listed Buildings and Conservation Areas) Act 1990

The Human Rights Act 1998

The Highways (Environmental Impacts Assessment) Regulations 2007

The Active Travel (Wales) Act 2013

The Well-being of Future Generations Act 2015

The Planning (Wales) Act 2015

The Historic Environment (Wales) Act 2016

The Environment (Wales) Act 2016

The Conservation of Habitats and Species Regulations 2017

Preface to the Report

This is the main report, of a pair, following the concurrent Public Local Inquiries (hereinafter referred to as the Inquiry in this report) into the proposals for a new M4 motorway at Newport. It has been submitted to the Welsh Ministers in accordance with the Highways Act 1980 - (Core Document - CD 3.1.5) and the Acquisition of Land Act 1981 (CD 3.1.6) - on the subject matter of the draft Schemes and draft Orders, the appropriate Environmental Statement, its Supplements, further Statutory Statements and Certificates that were published in respect of:

- the proposed construction of a new M4 motorway to the south of Newport, and
- the proposed alterations to the existing M4 and M48 motorways between Magor and Castleton.

At the Inquiry and in drafting the report, I was assisted by Mr Aidan McCooey BA, MSc, MRPTI, whose views are reflected herein. It covers the consideration of all objections to and representations about the draft Schemes and draft Orders, including all alternative schemes made by statutory and non-statutory objectors and draws conclusions and recommendations.

A second separate but coincident report has been submitted by Mr McCooey to the Welsh Ministers, into a "called-in" matter of the potential demolition of the listed Woodlands House, Magor, which would occur as a consequence of the scheme proceeding.

CASE DETAILS

- WG's motorway proposal, known as The M4 Corridor around Newport (M4CaN), is hereinafter referred to as "the scheme" in this report.
- The six draft Line Schemes and one draft Line Order would be made under Sections 16, 17, 19, and 106 of the Highways Act 1980, pursuant to Section 325 of that Act and are respectively known as:

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-

This is the original main Scheme for the proposed motorway. It defines the centre line of that Special Road, its connecting slip roads and the navigational clearances over Newport Docks and the Rivers Ebbw and Usk. It was published on 10 March 2016 but was altered by Scheme Modification 1, published on 5 September 2016. That modification amends the layout of the Docks junction and removes both the Docks Junction and Glan Llyn junction circulatory carriageways and link roads from the draft Scheme in order to remove the special road status from them (CD 2.1.1).

THE LONDON TO FISHGUARD TRUNK ROAD (EAST OF MAGOR TO CASTLETON) ORDER 201-

This Order defines the centre line of proposed lengths of trunk road and connecting slip roads and converts lengths of existing highway to trunk roads. It was published on 10 March 2016 but was altered by Line Order Modification 1, published on 5 September 2016. That modification incorporates the Docks junction and Glan Llyn junction circulatory carriageways and link roads into the draft Line Order as trunk roads (CD 2.1.2).

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-

This Scheme removes the Special Road classification from lengths of the M4 motorway and reclassifies them as trunk road. It was published on 10 March 2016 (CD 2.1.4).

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-

This Scheme makes provision for temporary restrictions to navigation on the Rivers Ebbw and Usk during the construction of the proposed bridge. It was published on 5 September 2016 (CD 2.4.7).

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-

This increases the height of the River Usk Crossing by 1.54 metres compared to the original Scheme. It was published on 14 December 2016 (CD 2.4.16).

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) (NO.2) SCHEME 201-

This Scheme authorises the construction of an eastbound off-slip road at Magor to connect to the A4810 at a roundabout with the B4245. It also amends the Supplementary Scheme Order to include a reference to Newport Docks as navigable waters. It was published on 21 March 2017 (CD 2.5.9).

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) (NO. 2) SCHEME 201-

This Scheme amends the width of the navigable waterway of the junction cut within Newport Docks to a minimum of 11 metres. It was published on 15 August 2017 (CD 2.8.3). Scheme Modification No 2 published on 12 March 2018 amends the width of junction cut to 13.5 metres.

- The 2 draft Side Roads Orders would be made under Sections 12, 14, 18, 125 and 268 of the Highways Act 1980 and are known as:

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-

This is the original Side Roads Order defining a package of proposals for highway improvements, stopping up of highways, construction of new highways, stopping up of private means of access, provision of new private means of access, and the construction of temporary lengths of highway. It was published on 10 March 2016. It was amended by Side Roads Order Modification 5 published on 5 September 2016 and by Side Roads Order Modification 17 published on 21 March 2017, which amend the layout of Bencroft Lane and Newport Road roundabout respectively (CD 2.1.3).

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) (SIDE ROADS) ORDER 201-

This supplementary Order defines the proposed stopped up and new private means of accesses within Newport Docks. It was published on the 20 April 2017 (CD 2.6.2).

The 5 draft Compulsory Purchase Orders would be made under Sections 239, 240, 246, 250 and 260 of the Highways Act 1980 and under Section 2 and paragraphs 1(1)(b), (3) and (4) of Part 1 of Schedule 2 of the Acquisition of Land Act 1981 and are known as:

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-

This Order authorises the acquisition of the land and the rights over land required for the construction of the proposed motorway and all associated works, as set out in the draft Scheme, Order and Side Roads Orders. It was published on 24 March 2016 (CD 2.1.5).

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-

This Order authorises the acquisition of land for the construction of the realigned Bencroft Lane and associated works, as well as for the realigned outfall from a water treatment area. It was published on 5 September 2015 (CD 2.4.3).

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 (NO. 2) COMPULSORY PURCHASE ORDER 201-

This Order authorises the acquisition of additional land and rights over land required for the construction of the eastbound off slip road at Magor. It was published on 21 March 2017 (CD 2.5.12).

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 (NO. 3) COMPULSORY PURCHASE ORDER 201-

This Order authorises the acquisition of extra land and rights over land, for the construction of bridge protection measures within Newport Docks. It was published on 25 May 2017 (CD 2.7.1).

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 (NO. 4) COMPULSORY PURCHASE ORDER 201-

This Order authorises the acquisition of the additional land required for the construction of amended bridge protection measures in Newport Docks. It was published on 22 August 2017 (CD 2.8.12).

ENVIRONMENTAL STATEMENTS, SUPPLEMENTS and CERTIFICATES

WG published the following Environmental Statement and Supplements to it, successively from 10 March 2016 until 11 August 2017:

ENVIRONMENTAL STATEMENT

(Published on 10 March 2016)

ENVIRONMENTAL STATEMENT SUPPLEMENT No.1

(Published on 5 September 2016).

ENVIRONMENTAL STATEMENT SUPPLEMENT No.2

(Published on 14 December 2016).

ENVIRONMENTAL STATEMENT SUPPLEMENT No.3

(Published on 21 March 2017).

ENVIRONMENTAL STATEMENT SUPPLEMENT No.4

(Published on 21 April 2017).

ENVIRONMENTAL STATEMENT SUPPLEMENT No.5

(Published on 15 August 2017).

ENVIRONMENTAL STATEMENT SUPPLEMENT No.6

(Published on 25 October 2017).

STATEMENT TO INFORM AN APPROPRIATE ASSESSMENT

(Published on 10 March 2016).

Updated STATEMENT TO INFORM AN APPROPRIATE ASSESSMENT

(Published on 11 August 2017).

STATEMENT TO INFORM AN APPROPRIATE ASSESSMENT Addendum

(Published on 15 August 2017).

SECTION 19 CERTIFICATES

(Published on 24 March 2017)

SUMMARY OF RECOMMENDATIONS

I recommend that the Schemes and Orders be made, either modified or unmodified as detailed in Section 9 of this Report.

THE PREAMBLE TO THE MAIN BODY OF REPORT

Inspectors' Appointments

- 1.1 I was appointed by the Minister for Economy and Infrastructure, one of the Welsh Ministers, on 10 June 2016 pursuant to Paragraph 7 of Schedule 1 of the Highways Act 1980 and Schedule 13 (2) of the Acquisition of Land Act 1981, to conduct concurrent Public Local Inquiries into the above draft Schemes and draft Orders, having regard to the tests set by statute and all objections and representations made in respect of them and to report to the Welsh Ministers. Mr Aidan McCooey BA, MSc, MRTPI was appointed on that day as Assistant Inspector for these purposes (CD 3.1.5).
- 1.2 On 22 August 2016 the Secretary of State for Transport appointed Mr McCooey and I as joint Inspectors, under Section 5 of the Acquisition of Land Act 1981, to consider whether the scheme would have a serious detriment to the undertaking of the Port of Newport, and to report separately to him on that specific issue. Following confirmation of an agreement between WG and Associated British Ports, the Secretary of State wrote to Mr McCooey and I on 12 March 2018 to formally discontinue that aspect of the Inquiries. Accordingly, no separate report has been submitted to the Secretary of State but, in so far as it is relevant to the consideration of the case for the draft Schemes and Orders, the impact that the scheme would have on the Port of Newport has been considered and covered within this report.

The Inquiry and Pre-Inquiry meetings

- 1.3 I held two Pre-Inquiry meetings at the Lysaght Institute, Orb Road, Newport NP19 0RA on 18 July 2016 and 27 January 2017. Notes of the meetings were sent to all persons who had registered at the meetings or had made objections or representations about the draft Schemes and draft Orders. The notes are set out in Public Inquiry Documents 1 and 2 (ID01, ID02).
- 1.4 I also held the Inquiry at the Lysaght Institute over 83 days between 28 February 2017 and 28 March 2018. It accommodated two substantial adjournments to enable WG to conclude work on:
 - changes arising from the UK Government's announcement that tolls on the Severn Crossings would cease in 2018,
 - fresh engineering solutions to protect the proposed Usk viaduct from the potential impact of ships within Newport Docks, and
 - a package of measures to offset the serious detriment to the Port of Newport that otherwise would occur from the construction or operation of the motorway.

Site Inspections

1.5 Mr McCooley and I undertook unaccompanied site inspections on 27 February 2017 and irregularly throughout the period of the Inquiry and afterwards to all parts of the area, including the surroundings of the existing M4 and all areas that would be affected by the suggested alternative routes. We, together or singularly, undertook further site inspections but in the company of objectors or their representatives and WG representatives on:

- 16 March 2017 - to the Newport Docks;
- 16 March 2017 – Newport Wetlands Reserve;
- 25 April 2017 - to Magor (Mrs Kenny’s home surroundings) and Magor Marsh Nature Reserve;
- 23 May 2017 – Blue Route.
- 19 June 2017 - to the Marshalls Mono works and offices off Corporation Road, Newport;
- 23 June 2017 – to the Roadchef Motorway Service Area (MSA) at Magor and Magor village;
- 5 July 2017 - to the Parc Golf Club and dwellings near Coedkernew
- 7 July 2017 - to areas near the village of Rogiet, Green Dairy Farm, Daffodil Lodge, Magor allotments, the eastern end of the Green Route (Alternative 3) and to Drewstow Gardens north of the M48;
- 19 July 2017 – to a wide area of the Caldicot and Wentlooge Levels;
- 20 July 2017 - to the eastern end of the TATA Steelworks and its main office at Llanwern;
- 19 September 2017 - to the line and built-up surroundings of the alternative known as the Blue Route (Alternatives 1 and 2);
- 24 October 2017 - to the Queensway Meadows site off Corporation Road, Newport;
- 30 January 2018 - again to the Newport Docks, and
- 2 February 2018 - to a number of farms along the published scheme route.

Mr McCooley undertook accompanied site visits without me on:

- 28 July, 2017 - to residential areas of Magor, and on
- 8 August 2017 - to the Clydach Vale bat-house near Brynmawr.

The objections to the scheme

- 1.6 Some 319 individual objections, from sources widespread across the UK, were submitted to WG, and sustained before the end of the Inquiry and comprised:
- 56 from Statutory objectors, including 4 from Community Councils;
 - 262 from bespoke non-statutory objectors*, and
 - 1 from a resident of Rogiet that attached a local petition of 49 signatures from locals, some of which had not otherwise objected (Public Inquiry Document (ID) 127, Public Inquiry Question response - PIQ134).

Inspector's Note

**WG classified a bespoke objection as one wherein different points of substance were made relative to the omnibus points of objection included in the campaign e-mails and letters that were all substantially similar.*

- 1.7 It also received 5,870 identical or virtually identical objecting e-mails* which appear to have arisen from the widespread campaigns of the:
- Royal Society for the Protection of Birds (RSPB) - 4,859 objections;
 - Woodland Trust (WT) - 705 objections;
 - Wildlife Trusts Wales (WTW) - 165 objections, and
 - Gwent Wildlife Trust (GWT) - 141 objections (PIQ-134).
- 1.8 At the end of the Inquiry 47 bespoke objections and about 675 campaign objections were withdrawn or had been identified as being submitted as duplicates. All objections and campaign e-mails were read and all have been considered (PIQ 124, ID 259 sub-section 1).

The grounds of objection

- 1.9 At the end of the objection period, in addition to a number of localised issues and some general criticisms, the main points of objection to the proposed scheme (hereinafter mostly referred to as the scheme in this report) were that it could not be justified on the grounds of:
- the unacceptability of all major road construction;
 - limited traffic, accident and congestion problems on the existing M4;
 - traffic growth has already abated (the Peak-car hypothesis) and future traffic growth is unproven;
 - the significant cost to the public purse;

- the poor value for money it would deliver;
- limited help evolving to the South Wales economy;
- the concentration of funding onto one project and the consequential diversion of money from other publicly funded projects;
- the air and noise pollution it would cause;
- its potential to generate carbon and further global warming;
- its potential to increase road traffic in Cardiff or elsewhere;
- any motorway construction at Newport being inconsistent with some WG policies, including the Active Travel Act 2015 and the Well-being of Future Generations (Wales) Act 2015 (*known hereinafter as the WBFG 2015 Act in this report*);
- its adverse effect on the historic landscape of the Gwent Levels;
- its impact on the environmentally rich Gwent Levels and on the wildlife of the Levels and the River Usk, including birds and bees and areas of ancient woodland;
- its inconsistency with the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981;
- its impact on designated Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs);
- its impact on local industry and industrial premises;
- its impact on local farm businesses and farm management;
- its effects on the operation of Newport Docks and various businesses within the Docks;
- the danger associated with building a motorway viaduct above operational dockland;
- the omission of a slip road to the established Motorway Service Area (MSA) at Magor;
- its adverse impacts on the communities at Magor, Llandevenny, Undy, and Rogiet in the east and on Coedkernew and Marshfield in the west;
- its detrimental impact on the Parc Golf Club, Coedkernew;
- the potential for satisfactory alternatives to be developed that would be less costly or less damaging to the environment, farming interests, Newport Docks and local communities, and

- the potential for an exacerbation of flooding near Marshfield and generally across the Gwent Levels.

1.10 During the course of the Inquiry, and principally as a result of WG publication of fresh evidence (arising from the removal of the Severn Crossing tolls and the significant works deemed necessary to off-set the impact that the scheme would have on Newport Docks) the following fresh points were made, additional to earlier ones, that the scheme should not be constructed because of:

- the extra costs of negating the impact it would have on the docks and difficulty in containing costs and risks;
- the negative impact on the ecosystem services provided by the Gwent Levels and the inability of the scheme to offer ecosystem improvement there;
- construction noise level causing disturbance to wildlife;
- little additional traffic arising when the M4 tolls are removed;
- the engineering complexities and monetary risk associated with a proposed swing-bridge in the docks and the safety risks associated with the operation of the motorway on a viaduct across the docks;
- the proposed works to the docks being potentially unlawful;
- the advent of park and ride facilities at Llanwern and St Mellons which may reduce motorway traffic, and
- construction of the motorway would be contrary to an African/Eurasia treaty for the protection of birds.

The support for the scheme

1.11 WG received 218 written expressions of support for the scheme from:

- City, County or County Borough Councils – 6 No.;
- national or regional organisations – 15 No.;
- industrialists - 42 No.;
- an organisation enclosing a supporting petition carrying 280 signatures;
- an all embracing one that attached a list of 80 individuals (some of which had submitted individual written support also) who specified their unique reasons why they supported the scheme, and
- 152 bespoke individual submissions (PIQ002, PIQ09).

1.12 At the end of the Inquiry no support had been withdrawn. All was

considered.

The Proposed Alternatives

1.13 28 alternatives to the published scheme were submitted for examination at the Inquiry and all points material to them were considered. The list included:

- 22 which were advanced before the start of the Inquiry and in accordance with the stipulations for such alternatives set at the Pre-Inquiry meetings, and in accordance with Highway Inquiry Regulations. WG developed all 22 into realistic engineering proposals, costed and analysed them and publicised them for non-statutory advice over a wide area, with a request for comment on them by 10 May 2017. 8 of these were withdrawn by the promoters during the course of the Inquiry.
- 6, which were submitted late and after the deadline set, were not published for comment other than through the Inquiry library and website. 3 of those were loosely defined alternatives but were developed by WG in liaison with the respective promoters during the course of the Inquiry. An alternative strategy Alternative 27 (some elements of which were not comprehensively defined) adopting a package of other alternatives, or parts of them and some unique points of its own, was also progressively developed in league with its advocate before the end of the Inquiry.

The Inquiry Witnesses and public appearances

1.14 26 main witnesses gave substantial main evidence at the Inquiry on behalf of WG, often over prolonged periods and with frequent appearances during the 83-day sitting, with 5 other witnesses giving supporting evidence. 9 supporters and 47 objectors appeared at the Inquiry (some of the objectors on a number of occasions) or were represented. One person appeared as a counter-objector to alternatives. Of the objector witnesses:

- 4 represented Community Councils;
- 1 represented a community group;
- 2 represented another community, apparently with the local Community Council backing;
- 21 represented statutory objectors;
- 21 represented non-statutory objectors;
- WG was represented by a QC, assisted by Counsel and lawyers;
- the objectors were represented by 2 QCs, 10 Counsel, 2 Solicitors and 2 Agents;

- over the duration of the Inquiry, members of the public made over 1,000 attendances, with an average daily attendance of about 15, and
- a list of all those who appeared to lead or give evidence at the Inquiry is set out at Annex A of this report.

Statutory Procedures

- 1.15 WG confirmed that all the Statutory Procedures in respect of the publication of its draft Schemes and draft Orders, the associated Environmental Statement (ES), and the Statement to Inform an Appropriate Assessment (SIAA) had been properly completed before the start of the Inquiry. Further procedures were necessary from the series of additional or amending draft Schemes and draft Orders, Environmental Statement Supplements (ESSs), and updates to the Statement to Inform an Appropriate Assessment (SIAA) that took account of on-going scheme development during the course of the Inquiry. WG confirmed that all the Statutory Procedures in respect of those later documents had also been properly completed (ID08).

The Proposals

- 1.16 The scheme would provide a 23km long dual 3-lane motorway from Magor to Castleton, passing to the south of Newport, along a line known locally as the Black Route, and include:
- approach viaducts to a large cable-stayed bridge across the Newport Docks and Rivers Usk and Ebbw;
 - internal alterations to the Newport Docks;
 - carriageway alterations on the existing M4 consistent with the downgrading of that motorway to an all-purpose trunk road;
 - a new connection from the all-purpose trunk road to Caerleon Road, Newport;
 - alterations to existing and the creation of new side roads, footpaths, cycleways, bridleways and accesses, and
 - areas dedicated for landscaping and the mitigation of the adverse environmental effects that the scheme would cause (ID06).

The Report

- 1.17 This report contains a brief description of the area, the gist of the cases presented and my conclusions and recommendations. Lists of appearances, the documents considered, proposed modifications and withdrawn or duplicated objections are appended at Annex A to E. The list of Core Documents will be contained in a separate document.

- 1.18 During the Inquiry, a series of changes to the scheme, publication of new and relevant policy documents, fresh cost estimates, economic analysis, traffic projections and environmental effects were made. The report covers the situation that was current at the closing of the Inquiry.
- 1.19 For ease of understanding, the report also contains a series of Inspectors' notes which seek to explain some of the points that arose during the process of cross-examination of witnesses and other explanations, for the guidance of Ministers.

Modifications and environmental commitments.

- 1.20 It is inevitable that during the long development process for a major highway scheme, and in this case the long public local Inquiry, changes would need to be made in order to reflect maturing thoughts and developments. These can often lead to the need for modifications to the original proposals. This case is no different and at the close of the Inquiry, WG had, often in collaboration with objectors and others, agreed to modify the scheme should it proceed. I have recorded the list of proposed modifications at Annex D of this report, for reasons of clarity and record-keeping.
- 1.21 A Register of Environmental Commitments was included in the ES and contains all the commitments made by WG, both historical and continuing (such as those made to statutory consultees and interested bodies). As the scheme is being progressed under the Highways Act 1980, the commitments in the Register are in lieu of planning conditions which would have been stipulated had it been progressed under the Planning Acts and accordingly WG treats them as binding. The final version of the Commitments Register - ID09f is designed to be monitored and audited during construction and thereafter. After opening, any continuing or outstanding commitments would be taken forward under the 5-year aftercare period or on-going maintenance programmes.

Translation facilities

- 1.22 On day 25, one person required the use of expert Welsh to English translation facilities that were available continuously throughout the Inquiry (ID1, ID2).

2 PROCEDURAL AND LEGAL MATTERS

The material points are:

- 2.1 At the first Pre-Inquiry meeting I requested that all legal submissions should be put in writing and similarly responded to by WG (ID1). I also explained that whilst matters of law are not for me to determine, to the extent that they arose from objections to the draft Schemes and Orders or, related to the evidence adduced by objectors or WG in responding to objectors, they do fall within my purview and I have therefore addressed them in my conclusions. No procedural points arose at the Inquiry. The legal submissions are synopsised immediately below.

The case for the Gwent Wildlife Trust

Inspector's Note

I use GWT here and elsewhere in the report as an abbreviation for the alliance of Gwent Wildlife Trust and Wildlife Trust Wales, both of whom are objectors in their own right.

- 2.2 On day 19 of the Inquiry, Mr Charles Streeten of Counsel, acting for the Gwent Wildlife Trust (GWT) and leading Professor John Altringham submitted that NRW would not grant a "bat licence" and the scheme should not therefore proceed (ID026). Mr Streeten, in quoting the case before the Court of Justice of the European Union of *Waddenzee v Staatsscretaris van Landbouw* [2005], stated that:

- *WG cannot rely upon proposed mitigation measures to grant consent unless it is confident those measures would succeed;*
- *confidence requires no reasonable scientific doubt regarding the effectiveness of the mitigation measures proposed;*
- *in the alternative, if there is a sliding scale of confidence then -*
 - (a) WG cannot be confident that mitigation measures would be effective in the absence of some scientific evidence demonstrating their effectiveness*
 - (b) the lower the degree of confidence in the mitigation measures proposed, the less likely the scheme should be approved, and*
 - (c) where there is less than 50% probability that mitigation measures would be effective WG cannot reasonably be confident that measures would be effective.*

The matter was later referred to, only partially, by Mr Brendon Moorhouse of Counsel in closing for GWT (ID260).

- 2.3 Attention was drawn to Regulation 34 of the Conservation (Natural Habitats, etc) Regulations 1994 which places a Competent Authority under a duty to have regard to the requirements of the Habitats Directive insofar

as those requirements may be affected by the exercise of the authority's functions. Development consent should not be granted where-

(a) the proposed development would be likely to offend Article 12 of the Directive and

(b) the development is unlikely to be licensed pursuant to the derogation powers under Article 16 of the Directive.

- 2.4 Mr Streeten identified the case of *R (Morge) v Hampshire County Council* 2012 UKSC 2 at [29], as relevant. The Directive imposes an absolute bar on the deliberate capture, killing or disturbance, as well as the deterioration or destruction of breeding sites, if they would be detrimental to the maintenance of the population of the species concerned at a favourable conservation status. The Trust considers the mitigation measures proposed for protected species to be insufficient because there is little scientific evidence to suggest the measures would be effective and cannot sensibly be relied upon in seeking a licence from NRW.

WG's response

- 2.5 The full legal response to this issue from WG is set out at Annex 3 of ID/259.
- 2.6 The concern of Professor Altrincham was with the construction and operational phases of the motorway, rather than the land-take. Land-take would involve the destruction of roosts in trees and buildings and very clear evidence has been given on that and the effective mitigation and compensation provided by artificial roosts at a ratio of 3:1. The evidence demonstrated the approach to be tried and tested and approved by NRW and Natural England. For these reasons, GWT's submission that certainty must be based on no reasonable scientific doubt is misconceived.
- 2.7 The position adopted by the Trust is inconsistent with *Morge*, of professional judgement having to be applied on a spectrum. The advice to the Court from Defra, that the judgement as to whether or not activities constitute disturbance will vary, depending on the conservation status of the particular species under consideration. Having regard to the evidence at the Inquiry, NRW do not suggest that a licence would be unlikely to be granted.
- 2.8 With regard to protected species, the objective of the Directive is "to conserve them". Conservation means "a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status as defined. The conservation status will be taken as favourable when population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats and that the natural range of the species is neither being reduced nor is it likely to be reduced for the foreseeable future and there is and will probably continue to be a sufficiently large habitat to maintain its population on a long-term basis".

- 2.9 The test to be applied in considering whether or not a species has favourable conservation status is that of the civil standard of proof - of a balance of probabilities - rather than the higher standard of exclusion of reasonable scientific doubt. This approach is much closer to what Professor Altrincham said in his oral evidence about the standard of proof he regards as appropriate rather than: "no reasonable scientific doubt", set out in the Trust's opening legal submission, though not repeated in its closing submission.
- 2.10 Should Ministers decide to proceed with the scheme, it is clear that they would have satisfied themselves as to need, public interest and the absence of a satisfactory alternative. For the reasons mentioned in ID 259 the GWT submission that there must be certainty such that there is no room for reasonable scientific doubt that 90% of bats, which would otherwise have used the removed roosts, would use the new roosts is misconceived.

The case for Marshalls Mono Ltd

- 2.11 On day 43 of the Inquiry, Mr Richard Glover, Solicitor, acting on behalf for Marshalls Mono Ltd claimed that WG had adequate power under Section 246(1) of the Highways Act 1980 to purchase land (the Freshwater site) to mitigate some of the adverse effects of constructing the scheme. In his view, that provision of the Act *could be extended to the purchase of land for the development of an industrial premises, which would be constructed as a replacement for premises that had been demolished because of the scheme.*
- 2.12 Mr Glover also drew attention to paragraph 9 of Appendix F to National Assembly for Wales Circular 14/2004 which provides guidance on the use of Section 246 (1) of the Highways Act 1980, which recognises that land may be purchased to offset the adverse environmental effects of a road scheme. He stresses that the Circular is advice and not the law set out in Section 246 (1) of the Act which, itself, makes no mention of the limitation of compulsory purchase in this regard; in other words, to offset only environmental adverse effects. Mr Glover, as an aside from the legal point also considers that WG should have engaged more with the company in pursuit of the spirit of the Circular.

WG response

- 2.13 The scheme would obliterate the Marshalls Mono site, and WG land at Queensway Meadows, Newport has been offered for development instead. The company regarded that as unsatisfactory unless the site was combined with another one, not in the ownership of WG, known as Freshwater and located just north of Queensway Meadows.
- 2.14 It is denied that WG had not engaged properly pursuant to paragraphs 22 and 23 of Circular 14/2004 and that Section 246 (1) of the Highways Act 1980 could be used to compulsorily acquire the Freshwater site (ID169).

- 2.15 Negotiations and discussions with Marshalls have been frequent and on-going. Section 246 (1) provides as follows: "... a highway authority may acquire land for the purpose of mitigating any adverse effect which the existence or use of a highway constructed or improved by them, or proposed to be constructed or improved by them, has or will have on the surroundings of the highway". This power enables the acquisition of land needed to maintain or improve the environment of areas adjacent to the road.
- 2.16 It is accepted that gloss put on statute in guidance is not determinative but can be persuasive, as demonstrated by *R v Tameside Metropolitan Borough Council ex p J* [2000] 1 FLR 942, 951G, where it was said that statutory guidance is: "*a helpful aid to the way the legislation is intended to be implemented, and it should not be departed from without good reason*".
- 2.17 The purpose of acquisition under Section 246 (1) of the Highways Act 1980 must be to mitigate any adverse effect which the highway has or will have on the surroundings of the highway. The land to be acquired in this instance is an industrial site. Accordingly, it has no intrinsic ecological, environmental or public amenity value. The highway would have an adverse effect on the owner and occupier of the land and the balance of the site, which would not be acquired. That would always be the case when highway land is in some use, or occupation, or is owned and has a market value. There is an important distinction to be drawn between:
- the adverse effect of a highway on its surroundings, and
 - the adverse effect which the highway would have on the landowner or occupier of the land acquired for the purpose of the highway.
- 2.18 On the legal construction favoured by Marshalls the scope of this section of the Highways Act would be very wide, if not all pervasive. It would give an acquiring authority the scope to consider dispossessing a landowner unaffected by a highway to accommodate or mitigate the loss of a landowner whose land was needed to build a highway. Such a power would put authorities in an unenviable position in having to choose between the landowner whose land is required for the highway and the almost infinite number of landowners whose land may be suitable to be taken over.
- 2.19 Furthermore, the Freshwater site would do nothing to mitigate the adverse effects of the scheme on the balance of the existing Marshall site. It is not an addition to that site. Rather, it is a replacement for it and a mere coincidence that it happens to be nearby a different part of a highway.
- 2.20 The narrower construction set out by the Circular makes the power under Section 246 (1) more workable and compatible with human rights and the general proposition that powers of compulsion should be limited to that which is necessary in the public interest. Accordingly, if a highway has no

adverse impact on its surroundings, because the surroundings are simply an industrial estate with no redeeming ecological or public space features, then the power simply does not exist. The breadth of the power on the Marshalls' construction is too great and cannot sensibly have been intended by Parliament.

- 2.21 Consideration of the exercise of the power to dispossess a third-party landowner whenever another land owner loses his or her land as a result of a highway would lead to administrative chaos and injustice. Farmers, for example, who lose land to a highway scheme might lobby the Authority to dispossess unaffected neighbouring farmers on the basis that they are better and more conscientious farmers than their neighbour and thus it will be in the public interest to acquire the neighbouring land.
- 2.22 Consideration of all these points leads WG to the view that it has correctly exercised the powers of Section 246 (1) of the Highways Act 1980 and abided by both the letter and spirit of Circular 14/2004. The Queensway Meadows site is suitable as a replacement for Marshalls and that opinion appears to be emerging from the views expressed in the Marshalls' letter of 23 March 2018. That emerging acknowledgement is yet another basis for concluding that it would not have been appropriate to consider the compulsory acquisition of the Freshwater site even if, contrary to WG's case, such a power existed and could, in an appropriate case, be exercised.

The case for R, G, K, M and R Jones of New Park Farm, Castleton (O227)

- 2.23 On day 44 of the Inquiry, Mr M Davies, Land Agent, representing the owner interests of New Park Farm submitted that: *if stone for construction should be extracted from the farm land then, as a matter of compensation law, the value of that material should accrue to the owners of the land from which the excavation was made.*

WG response

- 2.24 Matters of compensation are not for the Inquiry. The primary form of compensation has to be based on the market value of the land acquired. Further claims can be made for disturbance and, where the landowner retains land, for injurious affection and severance where the value of the retained land would be diminished.

The case for Miss Alicia Park, Miss Sophie Park, Miss Verity Park, Mr Adam Park (O231)

- 2.25 On day 44 of the Inquiry, Mr M Davies, Land Agent representing the interests of the Park family submitted that: *if stone for construction was to be hauled through his clients' land then compensation should reflect that advantage to the public at the expense of his clients.*

WG response

- 2.26 Matters of compensation are not for the Inquiry. The primary form of compensation has to be based on the market value of the land acquired. Further claims can be made for disturbance and, where the landowner retains land, for injurious affection and severance where the value of the retained land would be diminished.

The case for Magor with Undy local residents

- 2.27 On day 46 of the Inquiry, Councillor Frances Taylor, with Dr Mario Bisi, stated that the process was unfair because local residents, in having no traffic or other experts, were disadvantaged in terms of "equality of arms", compared to WG at the consultation exercise and at the Inquiry. Two other written objections (OBJ 132- Mr Hall and OBJ 231-Messrs Park) also drew attention to the imbalance of expertise and resources being ill matched with those of the objectors (including GWT).

WG response

- 2.28 The issue of "equality of arms" would apply under Article 6 of the Human Rights Act, if at all, to the Public Inquiry and not to the long-gone consultation process. Mr Hall, a non-statutory objector would have none of his land or property subject to the draft Orders. But the text of his objection, *"it seems unreasonable that so much money and professional public relations expertise as been put into the events supporting the plans when similar resources have not been made available to groups such as the Gwent Wildlife Trust who see the proposed road as unnecessary and disastrously damaging to the environment. This is totally unfair, especially as such an imbalance is likely to be repeated at any Public Inquiry"*, raises two points about balance, at the consultation stage and in the Public Inquiry.
- 2.29 It is of note that engagement on the problems, objectives and possible solutions to the M4 had been ongoing since the early 1990s and significant efforts were made to help people with an interest in the proposals to understand the available information and have any queries addressed appropriately. An evaluation survey of attendees at the 2015 exhibitions showed that 90% *"tended to agree or strongly agree"* that the exhibitions helped them to understand the proposals and 92% confirmed that they had found the information they required. A designated public liaison officer was also available to help people contact the project team and address any concerns or queries they may have. WG's engagement was cited by the independent organisation- Climate Change Wales- as an exemplar engagement exercise. To help lay people understand the effect that the scheme might have on their areas of interest an innovative 3-D computer model with a postcode finder tool was developed. This provided bespoke visualisation for thousands of people.
- 2.30 The exercise leading to the publication of draft Orders was the subject of an unsuccessful Judicial Review by the professionally represented Friends of the Earth Cymru, based amongst other things, upon the Blue Route

proposal which was advanced before and at the Inquiry by a professional Transport Planner and Economist.

2.31 In terms of the Public Inquiry and “equality of arms” there has been some consideration by the Courts in the context of Article 6 of the Convention. Of note are the cases of the R v Secretary of State for the Environment Transport and the Regions ex-p. Challenger CO/2048/2000, Pascoe v First Secretary of State [2007] 1 WLR 885 where the Judge said that:” *it is relevant that the Tribunal conducting a Hearing takes steps to ensure that the individual is not disadvantaged in presenting his or her case effectively and goes into matters in care and detail to ensure that the case is understood. This will be particularly relevant as a factor in the context of an inquisitorial procedure such as applies in a planning inquiry, in which the task of the inspector is to get to the real facts and form his own judgement in the light of his own inquiry*”.

2.32 From the above cases it is noticeable that:

- both these claims concerned Public Inquiries similar to this one;
- both these claims failed;
- the clear approach of the Courts is to assess whether relevant people whose Article 6 right is engaged have had a reasonable opportunity to present their cases on a case-by-case basis;
- the inquisitorial and relatively flexible nature of a Public Inquiry, as opposed to Court proceedings, is highly relevant, including, in this case, an assessment of the way in which the two Inspectors have facilitated unrepresented persons to make their cases, and
- it is relevant to take account of any professional support and assistance received, both from legally qualified and other relevant professionals, as well as any relevant skills possessed by the applicants themselves.

2.33 Mr Hall is not a statutory objector and chose not to make any oral representations to the Inquiry. His human rights are not engaged and therefore Article 6 does not apply to his case.

2.34 Neither Councillor Frances Taylor nor Dr Bisi is a statutory objector in the sense of any of their property being subject to the CPO, and Councillor Taylor did not claim to represent any of her constituents who may have a particular CPO interest. No submissions about any individual's human rights generally, or Article 6 compliance in particular, were made, nor was any request made to the Inspectors for funding or other assistance.

2.35 Gwent Wildlife Trust is a statutory objector whose land would be subject to the CPO but they made no application to the Inspectors for a direction in respect of either funding or appointment of Counsel. They were ably assisted and represented by an impressive team of Counsel who had volunteered their services, (similar to those in Mr Challenger's case). Mr

James Byrne, an employee officer of the GWT, holds relevant qualifications and although he engaged in advocacy on behalf of GWT, at times he chose not to give oral evidence, although he submitted several detailed written statements in his own name. The Trust called a number of academics and professionals in relevant fields of expertise, some of which appeared to present evidence. They were called and re-examined by Counsel who have, when so instructed, also cross-examined WG witnesses. The Trust also frequently liaised with other objectors, taking on an umbrella role with CPRW and the Woodland Trust who were both represented at the Inquiry by employed officers with relevant qualifications. They gave evidence, were called and re-examined by Counsel.

- 2.36 As for others, similarly, Dr Linstrum, whilst not an expert in traffic modelling, is a highly educated woman, as is Mrs Picton MBE. She occupied a central role in the Inquiry, attending almost every session and she prepared herself thoroughly, read relevant material in advance and posed many questions which were thoughtful. Throughout, she received assistance from the Inspectors on the occasions when she needed to get to the heart of the points. WG team went out of its way to provide her with documentary and other material to assist her in putting forward her case. She graciously acknowledged this assistance.
- 2.37 The Inquiry involved a large amount of technical evidence but was one where people have been able to present their own cases in their own ways, assisted by the understanding of the Inspectors and provided with flexibility and consideration in terms of timing of appearances, facilitated by the Program Officer and Inspectors to ensure that anyone who wanted to speak had the chance to do so in an atmosphere of order but not undue formality. The Public Inquiry forum was therefore accessible to all of those who wished to participate.

The case of Mr William Jones in respect of land at Tyn-yr Brwyn Farm, Coedkernew (O228)

- 2.38 In a written objection, Mr M Davies, as agent for Mr Jones, drew attention to the fact that CPO plot 2/18k earmarked for construction purposes was distant from the scheme, with the implication that such inclusion in the draft CPO may be unlawful.

WG response

- 2.39 Parcels of land included in the draft CPO are located distant from the line of the proposed motorway to provide land for the mitigation of the adverse effects that the scheme would otherwise bring or for the winning of materials. There are no distance limits restraining the inclusion of such parcels of land within the CPO.

The case for Cycling UK

- 2.40 On day 26 of the Inquiry, Cycling UK stated that WG were in breach of both their own Active Travel (Wales) Act 2013 and unspecified EU Environmental law because of the failure at the outset of the process, to

assess alternative modes of travel that would accord with the Act, or their respective environmental effects.

WG response

- 2.41 The Active Travel (Wales) Act 2013 places an obligation on WG, pursuant to Section 1(e) and Section 9(1) of the Act, when exercising its functions under the Highways Act 1980, *to take reasonable steps* to enhance the provision made for walkers and cyclists, in so far as that is practicable. The extent to which WG has complied with the Act is set out in the evidence of Mrs Tindale at her paragraphs 7.42 – 7.52 of WG 1.10.1. All but one of the PROW that cross the path of the scheme would be diverted onto a new line and the path which would be lost is only 134 m long and leads to a dead end. In addition to diverting existing paths, the scheme would create six new PROW totalling 3.14 km in length and a shared use path approximately 1 km long. This package defines the practicable *reasonable steps* that have been taken to enhance provision for walkers and cyclists. The scheme would result in greater and better provision for walkers and cyclists. Earlier assessments following public consultations in 2010 proved that public transport measures and active-travel schemes could not individually or in combination address the current problems of the M4, let alone those of the future. The allegation that there has been a breach of the Act is therefore without merit.

Two issues of Human Rights

- 2.42 In written evidence on behalf of a statutory objector an agent claimed, without elaboration, that the scheme would offer no overriding public benefit which could justify the interference with his client's human rights. Similarly, Mr Tyrone Broome, acting on behalf of Llandevenny residents, drew attention to an affront to the human rights of local residents should the scheme proceed as planned.

WG response

- 2.43 The relevant human rights are all contained in Article 1 and Article 8 to the First Protocol. Article 8 provides as follows... *Everyone has a right to respect for his private and family life, his home and his correspondence. There should be no interference by a public authority with the exercise of this right except such as in accordance with the law and as necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country...* Article 1 of the First Protocol provides as follows: *every natural or legal person is entitled to a peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by the law and by the general principles of international law.*
- 2.44 WG submits that a very strong need has been demonstrated for the new road in terms of the economic well-being of Wales (Article 8) and the general public interest (Article 1) and that is sufficient to justify the interference. The interventions are proposed under clear, known legal

provisions within a statutory process which ensures a fair and public hearing within a reasonable time by an independent and impartial tribunal established by law in accordance with Article 6 and makes provision for compensation on known principles. The Inquiry has satisfied that point.

The Environment (Wales) Act 2016, Specific Species and Habitats

- 2.45 Mr Brendon Moorhouse of Counsel representing both the GWT and RSPB in closing, drew attention to the requirements of the Act. He claimed that the Act legislates to halt the loss of biodiversity and restore the resilience of ecosystems by requiring WG to maintain and enhance biodiversity and the resilience of ecosystems, and combat climate change by reducing greenhouse gases in Wales by at least 80% by 2050.
- 2.46 Mr Moorhouse also drew attention to the State of Natural Resources (SoNR) report which was published in 2016 and the Natural Resources policy. This states that: *to build the resilience into our ecosystems we need to: proactively develop resilient ecological networks to maintain and enhance the wider resilience of Wales' ecosystems. The evidence shows that diversity is declining and that land and sea use change, including urbanisation, is leading to fragmentation and loss of habitats and species and soil sealing. Building on the protected sites of Wales our aim is to improve resilience and reverse the decline of biodiversity in Wales. Reversing this trend, by better managing existing areas and creating new ones will also provide important wider benefits for society.*
- 2.47 Mr Moorhouse draws further attention to the efforts through the Wales National Transport Strategy and Finance Plan to: *promote a more sustainable road transport network and a modal-shift away from roads for people and freight. This will reduce emissions and impact that transport has on our environment and on our health...we will take action on our transport networks that enhances the resilience of our ecosystems and reverses the decline of biodiversity.* In his view the scheme would fail to satisfy the Act or the strategy and may be directly contrary to them.
- 2.48 RSPB recognises that Section 6 of the EWA is not an absolute duty but dispute that the words: "seek to maintain and enhance biodiversity" weakens the duty. It suggests a more proactive approach. Objectors dispute the interpretation of the duty as being: "so far as is consistent with the proper exercise of WG's functions in respect of the motorway network". The Natural Resources policy has now been published. This cites improving ecosystem resilience as one of the three key challenges and states that: "WG's aim is to improve resilience and reverse the decline in biodiversity in Wales, building on Wales's protected sites.

WG response

- 2.49 WG's opinion on this matter is set out in full on pages 238-252 of ID 259. In essence it recognises the definitions set out in Section 3 of the Act, the principles of sustainable management of natural resources in Section 4 and the duties imposed in respect of biodiversity and ecosystems at

Section 6. It emphasises that Section 6 (1) does not create an absolute duty; the authority is *to seek to maintain and enhance biodiversity in the exercise of its functions and promote the resilience of ecosystems so far as consistent with a proper exercise of those functions.*

- 2.50 None of the provisions of the Act require either a total absence of harm on the one hand or enhancement on the other. In any event, it would be impossible for any major infrastructure to avoid such disturbance.
- 2.51 Account has to be taken of the condition of ecosystems and logically that would form a starting point in any assessment of mitigation. The SSSI's of the Gwent Levels are in unfavourable condition and WG rejects the suggestion by RSPB and the GWT that one should assume favourable condition as the baseline for assessment. Such a concept is not founded in law or guidance and is plainly illogical and unscientific. Proper assessment, design and mitigation must respond to the situation on the ground and no one should proceed on the basis of an assumed reality which does not exist. It is accepted that the effects of the new road would be negative in the short-term but mitigation in line with the principles of sustainable management of natural resources would reduce many effects to slight or at most moderate significance in the long term. These effects have been agreed with NRW and were assessed in the ES on a precautionary basis. The principles of sustainable management permit consideration of short, medium and long-term consequences of action and there is no doubt that WG is seeking to maintain and enhance biodiversity as it exercises its functions.
- 2.52 In terms of natural resources, in the broad statutory sense, the net effects of the scheme on air quality would be positive. With mitigation, water quality and quantity in the SSSIs would be maintained. In some cases, they would be enhanced, because currently unmanaged ditches would be brought under the management of the SSSIs and the mitigation areas would offer opportunities to restore lost reens and ditches and managed grazing marsh to improve biodiversity, replacing the current, unhelpful agricultural regimes on that land. Elsewhere, contaminated soils would be treated and utilised wherever possible, thus sustainably removing contamination and avoiding use of other imported and natural materials. Extensive evidence in this regard has been given and on the basis of this evidence it is clear that WG has acted in accordance with the duties under the Environment (Wales) Act and its natural resources policy published under Section 9 of that Act.
- 2.53 Climate features and processes have been taken into account and after 2025 the scheme would make no difference in respect of tidal flooding potential, whilst in the short term the potential of flooding would be marginally improved by the scheme. In all those respects, the statutory process would be served.
- 2.54 It is accepted that Section 7 of the Act requires biodiversity lists to be formed and establishes a duty to take steps to maintain and enhance biodiversity. In practice that means that the Welsh Ministers must prepare

and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in Wales. In so doing they must consult NRW. They must also take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under Section 7 and encourage others to take steps. The Welsh Ministers must in consultation with NRW keep under review any list published by them under Section 7, make such revisions of any such list as appear to them appropriate and publish any list so revised as soon as is reasonably practicable after revising it. In exercising their functions under this section, the principles of sustainable management of natural resources must apply.

- 2.55 There are clear connections between Sections 6 and 7 and the legislation recognises this by imposing the duty under Section 7(3), without prejudice to Section 6. By Section 6(5) the Inquiry Inspectors additionally must have regard to Section 7 list and the SoNR. Both the sections are qualified. Section 6 (1) stipulates a duty *to seek to maintain and enhance biodiversity so far as is consistent with the proper exercise of its functions*. The Section 7 duty is *to take all reasonable steps. These statutory qualifications are important and mean that causing a negative effect to biodiversity, or to a Section 7 species or habitat, is not in itself a breach of statute*. What the law requires is consideration of the protected elements and a conscientious effort, taking all reasonable steps, to seek to maintain and enhance, whilst exercising the functions of, in this case the National Government and Highway Authority. It is clear that these duties have been discharged with regards to the Gwent Levels SSSI ecosystems and a non-statutory Ecosystem Services Assessment was undertaken during the process of the Inquiry and reported to it.
- 2.56 The conclusions of that Ecosystem Services Assessment are relevant, because Section 3(2) of the EWA defines the central statutory concept of sustainable management of natural resources in terms of maintaining and enhancing the resilience of ecosystems and the benefits they provide. The mitigation would maintain the resilience of the ecosystems and enhance them. The findings are totally consistent with the evidence from WG and the recognition that, whilst the scheme would cause about 86ha of SSSI to be permanently lost from the SSSIs, that would be more than offset by the 170ha of reinstated and enhanced land to be incorporated as SSSI. There would be a net increase of land performing SSSI functions. All that is important in terms of compliance with the Act but also in terms of the WBFG Act 2015.
- 2.57 Should the scheme proceed there would be a net loss in ecosystem services associated with some food production but there would be benefits for biodiversity from species-rich grassland and the woodland provided in the landscaped areas and the Caldicot Moor SSSI mitigation area, with 26ha of additional species-rich grassland created. That land would include food for insects, improve water quality through a reduction in pesticide and fertiliser and be of benefit to human health and well-being through increased access to woodland areas. There would be a loss of about 49ha

of woodland but 120ha would be re-provided, including shelter belts, shrub and replanted woodland. About 169ha of brownfield land would be affected and that would have an adverse impact on biodiversity since those areas are of nature conservation value, and in some areas, of heritage value. However, those areas would be exceeded by the creation of flower-rich habitat elsewhere.

The Well Being of Future Generations Wales Act 2015 (WBFG Act 2015)

Inspector's Note

On 13 September 2017, I received an email from the Future Generations Commissioner for Wales expressing concern that an allegation had been made, apparently to her by an unidentified objector, claiming that the duties which fall upon WG from the 2015 Act were being legally misapplied by them at the Inquiry. She expressed a legal interpretation on the issue (ID33, ID109, ID109a, ID178).

A number of objectors followed suit, asserting that the scheme should not be allowed to proceed because the Commissioner considered that it would not comply with the Act (in her earlier evidence), but none backed up such an assertion with any legal argument.

The September 2017 representation followed the Commissioner's written objection to the Inquiry which also expressed opinions on the complex interpretation of the 2015 Act insofar as it applied to public bodies in their development of schemes and to the M4 in particular. I therefore invited WG to respond in writing to all her concerns. In the event, because of the similar concerns from other objectors, they understandably, chose to present a statement of evidence to the Inquiry and have it subjected to cross-examination.

Accordingly, I have treated part of the Commissioner's evidence, and some of WG's response to it, as matters of the interpretation of law but, for convenience, I deal with the differences between these two parties in my reporting of that particular objection under Section 6 of the report covering Non-Statutory Written Objections. However, I highlight here the predominantly legal elements of the issue between the parties, put in a helpful particularised way by Mr James Byrne representing GWT in a written representation (ID33 revised, ID109, ID109a, and ID178 are relevant Inquiry documents).

2.58 Both the RSPB and GWT consider that a scheme, in order to comply with the WBFG Act, needs to demonstrate a complete balance of achieving all the well-being goals of the Act equally and in their view this scheme would not and therefore fails against the requirements of the Act. Mr Byrne, also claimed that the scheme contravened the Act, because as stated by the Future Generations Commissioner in her letter to the Minister, the standard of evidence provided under each of the goals contained within the Act for justifying the project, is not sufficient. Therefore, in Mr Byrne's opinion the scheme fails on the following grounds-

(a) Climate change

Acting on climate change is embedded within three of the well-being goals but a new motorway would add to carbon emissions. It follows that the scheme does not accord with the Act.

(b) A resilient Wales

Building a motorway through a nationally important nature reserve would neither maintain nor enhance the reserve and therefore would be contrary to the Act – because of habitat loss, fragmentation, and degradation would act against the principle of a resilient Wales.

WG response

- 2.59 The Act itself recognises that development must take place in the present day to satisfy the needs of today's society, but that the form of that development should not preclude choices for future generations. The RSPB/GWT maintain that the only notion of balancing in the WCFG Act relates to short and long-term needs. This is wrong and an over simplification. It is clear from the Act's definition of "sustainable development" that the required actions involve weighing and balancing different considerations.
- 2.60 Section 2 of the WCFG Act refers to the economic, social, environmental and cultural well-being of Wales. Any analysis of whether actions taken accord with the definition of sustainable development and achieve the 7 well-being goals in Section 4 of the Act will involve making judgements especially as all actions cannot reasonably be expected to contribute equally to all 4 elements of well-being or all 7 well-being goals. Informed, balanced judgments will be needed to decide on preferred actions taking account of the sustainable development principle and the well-being goals, some of which are, potentially, in tension.
- 2.61 A decision regarding such a major piece of infrastructure will require the consideration and balancing of a wide range of effects across the economic, social, environmental and cultural spheres. Whilst the WCFG Act requires new processes and gives statutory expression to the concept of "sustainable development", it does not prescribe answers or outcomes. It does not say that the environment must always outweigh economic, social or cultural considerations but requires a balance to be struck across all elements of well-being and all considerations. WG's evidence demonstrates that the balance of advantage lies with the scheme. The objectors may disagree with that judgement but the Act does not prevent the Minister from reaching such a conclusion.
- 2.62 The scheme is not the short-term measure claimed by objectors. The congestion around Newport is a long-standing problem that is projected to get worse if not tackled. The scheme would provide a long-term solution to long-term needs and is the only satisfactory solution to have emerged from years of careful analysis, in collaboration with others. The development of the scheme is entirely in line with the principles of sustainable development as now set out in the WCFG Act.
- 2.63 WG has given the views of NRW the fullest consideration and worked with it to overcome its concerns. This is demonstrated by the Statements of Common Ground (SOCGs) and environmental commitments that are narrowing NRW's remaining concerns to just a few matters from the large number initially raised. That is collaboration to achieve the desired

outcomes. It is necessary for informed judgements to be made based on evidence, rather than assertion. This is the approach advocated under the Act.

- 2.64 The relatively recent publication of *Prosperity for All* and the new well-being goals does not alter the above assessment. As shown on page 6 of *Prosperity for All*, each of its four key themes (the same as those in Taking Wales Forward) is supported by three of the updated well-being objectives, providing an explicit link between the themes and objectives. The vision for the *United and Connected* theme includes: “*building the vital links that make it easier for people to come together for the economy to grow, and for us to become an ever more confident and outward looking nation*”. Well-being Objective 11: “*delivering modern and connected infrastructure*” includes an explicit commitment to deliver a *significant improvement to the M4 around Newport*. The wording has changed from the previous iteration in 2016 *Programme for Government* but it still recognises the importance that WG attached to this project, and the published scheme is one of the few put forward to the Inquiry that could achieve a *significant improvement*. The scheme would contribute to the updated well-being objectives and would be lawful (PIQ 146).

The Wildlife and Countryside Act 1981 (WCA): S28G

- 2.65 The duty under Section 28G of the Act was referred to by several objectors, including the Gwent Wildlife Trust, Wales Wildlife Trust and RSPB. These objectors pointed out that SSSI's are the most important national protected sites for wildlife and other features in Wales. They make a fundamental contribution to the ecological processes upon which all depend, and to the quality of human life. Section 28G requires public bodies, including WG, to: “take reasonable steps, consistent with the proper exercise of the authority's functions, to further the conservation and enhancement of the flora, fauna and geological or physiographic features by reason of which the site is of special scientific interest”. Allowing the scheme to proceed in its current form would be contrary to that duty, it would permanently damage the SSSIs and their notified features. The scheme would involve direct land take of 125 ha from the 4 SSSIs. The objectors argue that the proposed mitigation would not succeed and the effects on the SSSI's would be devastating. They would experience permanent severance of the northern and southern parts. NRW also argues that the scheme would breach this duty and that the related guidance in TAN 5. Its argument focused in particular on the quantum of land affected by the scheme and the excessive land-take associated with the Glan Llyn junction.

WG response

- 2.66 The duties of WG in relation to biodiversity and sustainable development are contained in the Wildlife and Countryside Act 1981, Section 28G; the Well-being of Future Generations (Wales) Act 2015, Section 3 (1); and part one of the Environment (Wales) Act 2016.

2.67 WCA, Section 28G (2) states:

The duty is to take reasonable steps, consistent with the proper exercise of the authority's functions, to further the conservation and enhancement of the flora, fauna and geological or physiographic features by reason of which the site is of special scientific interest.

2.68 Objectors argue that because the published scheme would cause loss of land and severance this would be directly contrary to fulfilling the duty to conserve and enhance these sites. This illustrates the error in their argument, since the duty is not simply to conserve and enhance but to take reasonable steps, consistent with the proper exercise of the authority's functions to further conserve and enhance.... By selectively quoting section 28G objectors misinterpreted and misapply the duty since loss of land and other impact on the SSSIs does not simply equate to a breach of legislative requirements this was confirmed in the judgement handed down in the judicial review by friends of the Earth of the M4 CAN plan (CD 4.5.4). The judge accepted that the process leading to WG's decision to adopt the plan was focused on the potential harm to the Gwent Levels SSSIs and the mitigation of that harm. The route had been chosen to minimise impact on the SSSIs and a comprehensive mitigation strategy was being developed. The design of both the scheme and the accompanying mitigation strategy has continued to evolve in consultation with NRW, culminating in a wide measure of agreement on the substantive issues. WG has hence taken the reasonable steps to further the conservation and enhancement of the features of the SSSIs throughout the process.

2.69 The passage in TAN 5 relied upon by NRW which requires Section 28G authorities "to apply strict tests when carrying out functions within or affecting SSSIs, to ensure that they avoid, or at least minimise, adverse effects", in no way conflicts with the law as set out in the above judgement. The test is similar and recognises that there may be unavoidable adverse effects which should be minimised.

2.70 In summary, the questions asked relate to the reasonableness of the steps to further the conservation and enhancement of the SSSI features. The law leaves this judgement to the consideration of the decision-maker in each case. It is obviously not just a numbers game as consideration must be given to the quality and significance of what is lost.

3 DESCRIPTION OF THE SURROUNDINGS

The material points are:

- 3.1 An aerial photograph of the area, with the proposed scheme superimposed on it, is shown in the M4 Corridor Around Newport Summary Brochure – (ID/004). This illustrates the position of the existing and proposed motorways relative to the local urban, industrial, commercial and rural areas, the main north-south flowing rivers Usk and Ebbw, the Severn Estuary, the South Wales mainline railway and the Newport Docks. The Wentlooge and Caldicot Levels, together known as the Gwent Levels, located west and east of the Rivers Ebbw and Usk respectively, and the communities which would be located close to the scheme are also shown. The photograph also illustrates the substantial area defined as the Gwent Levels Sites of Special Scientific Interest (SSSIs) and the River Usk Special Area of Conservation (SAC) through, or over, which the proposed scheme would pass (PIQ07, PIQ135).
- 3.2 In illustrating the size and location of those designated and sensitive areas relative to the proposed motorway, it puts into context the relative areas that would, or would not, be directly impacted upon and the degree of severance that would be inflicted on some sites, should the scheme be built. The direct impact that the scheme would have on four SSSIs, on the Lower Usk SAC (SSSI) and the indirect impact on a fifth SSSI is illustrated on the large-scale plan at PIQ102.
- 3.3 In the west, and between the existing M4/A48M at Castleton and the Newport Docks, the proposed corridor crosses an area of open, flat and productive pasture, passing through a succession of individual farm units, in an area typified by small field patterns bounded by low well-maintained hedgerows, some mature trees and small copses (PIQ77).
- 3.4 Much of the area is characterised by low-lying areas of grassland, into which interconnected waterways, known locally as reens and field ditches were cut centuries ago and are now periodically maintained by Natural Resources Wales (NRW) through dredging the channel and cropping one side bank, generally every seventh year. ID52 shows the intense detail of these interconnected reens and ditches and the areas which would be severed by the proposed motorway, as well as the severance that currently exists from the wide Paddington-Swansea mainline railway corridor, in passing east-west through both the Wentlooge and St Brides Sites of Special Scientific Interest (SSSI) (PIQ/114).
- 3.5 The established commercial, industrial and residential areas at Coedkernew and Duffryn lie just north of the intended corridor, with the reclaimed wetlands, of significant ecological and historic landscape value to the south, just west of the River Ebbw (PIQ88).
- 3.6 To the east of the river the motorway would cross over large-scale industrial areas, the operational docks, its massive infrastructure and

dock-side industry, whilst the proposed Docks access road would occupy land between the extensive landfill site and the western boundary of the docks.

- 3.7 Thereafter the motorway would run across the wide, heavily tidal, River Usk and its wide mudbanks, which twice daily are exposed at low tide and correspondingly, completely submerged at high tide. Tidal flood banks, which form part of the River Usk SAC, are raised either side of the substantial wet channel of the river.
- 3.8 The proposed Usk Bridge would be located between meandering bends on a straight stretch of the river about 200 metres downstream of the dominant, listed, Newport Transporter Bridge and a similar distance upstream of the two east-bank Uskmouth Power Stations.
- 3.9 East of the Usk, the delineated corridor would pass through further large commercial and industrial establishments, then run roughly parallel to but south of the A4810 dual carriageway, the emerging 4,000-dwellings development at Glan Llyn and the large, operational Tata Steelworks. In that area, it would again cross through flat and low-lying pastureland, which is crossed by a collection of prominent electricity power lines running generally eastwards from the power stations and rural single carriageway roads.
- 3.10 The 3 Gwent Levels' SSSI in this area which would be affected are known respectively as the:
- Whiston;
 - Llandeenny and Redwick, and
 - Magor with Undy SSSIs,

and are also characterised by an extensive matrix of hedgerows and interconnected watercourses (PIQ05, PIQ102, PIQ135).

- 3.11 The raised prominent flood defence bank of the Severn Estuary sits well to the south of the proposed corridor, encasing the low-lying flat land through which the road would pass (PIQ22, PIQ98, PIQ112).
- 3.12 East of the steelworks the proposed corridor would enter Monmouthshire, passing the imposing Gwent Europark, the hamlet of Llandeenny and a large brewery, all located to its west. Thereafter it encroaches again upon the alignment and corridor of the A4810. The urban areas of Magor, Undy, Rogiet and Llangvihangel and its conservation area would lie just east of the proposed motorway and just south of the existing M4 with which the proposed road would merge as it approaches the existing M48 (PIQ/97).

Preamble to and sub-contents of Section 4

This is to assist the reader in putting the 260-pages of reporting of the case for the scheme in Section 4 of the report into context and to easily locate topics.

In general terms, The Highways Act 1980 stipulates that the case for the scheme must show that it is expedient in the public interest, having due regard to national and local planning policies and the reasonable requirements of navigation and agriculture and that its impacts would not be disproportionate. It also stipulates that where side roads and private means of access are affected their replacements are reasonable. Other Acts also have a bearing on the acceptability of the scheme, in particular, in Wales the scheme must be shown to be sustainable development.

The Acquisition of Land Act 1981 stipulates that:

- it must be demonstrated that all land required for the scheme is necessary;
- the exchange land provided for the removal of statutory allotments and common land is compliant with the tests established by the Act, and
- that the scheme would not have a serious detriment to the undertaking of statutory operation of the Port of Newport.

It is against that background that WG presented its case for examination at the Inquiry in a sequence which is reflected in the reporting of it immediately below. The following skeleton table is intended to assist the reader locate individual sections of subject matter:

Subheadings in Section 4 Paragraph

1. Compliance with national and local planning policies, Acts, Background and history of public consultations –
relevant to demonstrate compliance with the Acts/policies. 4.1-4.60
2. Current and future traffic, road capacity and public transport –
relevant to demonstrate need and the adoption of the appropriate solution.
4.61-4.86
3. Accidents and incidents-
*relevant to demonstrate the need for and suitability of
the scheme.* 4.87-4.90
4. Detailed description of the scheme-

<i>relevant to demonstrate the need for all land in the CPO, the provisions for navigation, the implications of construction on the - docks, NMUs, reens and railway bridges. Also, relevant to demonstrate expediency, reasonable side road and access provision and define the basis of the CPO and SRO, in accordance with the Acts.</i>	4.91- 4.128
5. <u>Cost and economic benefits of the scheme-</u> <i>relevant to demonstrate expediency and value for money.</i>	4.129- 4.138
6. <u>Construction issues and land contamination,</u> <i>relevant to demonstrate expediency.</i>	4.139- 4.150
7. <u>Agricultural land impacts, statutory land uses</u> <i>relevant to demonstrate expediency and compliance with the Act.</i>	4.151- 4.158
8. <u>The positive and negative environmental effects on the scheme:</u>	
air quality and pollution	4.159- 4.160
carbon	4.161- 4.154
noise and vibration	4.165- 4.157
water quality across the Gwent Levels	4.168- 4.179
tidal and non-tidal flooding	4.180- 4.187
cultural heritage	4.188- 4.204
ecology and the natural environment	4.205- 4.227
birds	4.228
dormice and water voles	4.229- 4.230

ecosystem services	4.231- 4.234
bats, and	4.235
landscape	4.236- 4.244

all relevant to demonstrate the weight to be afforded to the individual or negative issues that the scheme would cause.

WG's case in chief draws to an end by updating the ESs and SIAA, dealing with environmental regulations and commitments and generally updating the evidence. 4.244-4.260.

4 THE CASE FOR WG

The material points are:

The evidence of Mr Matthew Jones (WG1.1.1)

The Scheme Background and the History of Public Consultation

- 4.1 A 1989 South Wales trunk roads study exposed the capacity, engineering and alignment deficiencies of the M4 north of Newport and led, in 1993, to the first public consultation on substantial options for improvement. That engagement produced over 6,000 responses. Based on these, the then Secretary of State for Wales announced his intention to construct a new motorway, subject to a second consultation with the public and interested parties, about the impact it may have on the Gwent Levels SSSIs and on Newport Docks (CD4.1.1, PIQ17, PIQ102).
- 4.2 After considering the 1,000+ responses to that second consultation, the Secretary of State confirmed:
 - in July 1995, that the preferred route of the motorway would be to the north of Magor and through Newport Docks (PIQ17), and
 - in April 1997, that the route would be protected from development by the issue of TR 111 Notices to the relevant local authorities (CD4.1.23).
- 4.3 Although the 2004 Wales Spatial Plan recognised that particular scheme, a fresh TR 111 Notice was issued in April 2006 for a different route to reduce the impact on the SSSIs, by keeping as far to the north as practicable (CD4.2.4-CD4.2.7).
- 4.4 In 2009 progress was halted by the then Minister, who judged such a scheme to be unaffordable and directed that the recognised issues of

capacity, safety and resilience of the M4 be addressed by alternative means (CD4.3.1-CD4.3.6).

- 4.5 In consequence, from September 2010, following the assessment, the public were again consulted, this time on over 100 potential measures for solution of the identified problems, including local network improvements, travel planning, demand management and enhancement of alternative modes of transport (CD4.3.7, CD4.3.8).
- 4.6 Afterwards, from March to July 2012, participants were asked to comment on the road-based and public transport options and, at the same time, the general public were formally asked to identify what they actually considered to be travel related problems, aims and goals for the M4 corridor, and themselves, to suggest the solutions to WG. At that time WG was seeking a solution that would be delivered by public transport improvements but came to the view that such improvements needed to be supplemented by a new road because they could only deliver 4-5% relief to the M4 (CD4.3.5, CD4.3.8).
- 4.7 This engagement drew 674 responses to the consultation document, including a campaign-inspired identical batch of 54. In the order of 2,100 people attended the consultation, with 1,100 people attending external associated events. About 11,247 visits were made to the dedicated website. An analysis indicated that most participants were either daily or weekly users of the M4 around Newport. Seventeen problems of capacity, resilience, safety and sustainable development were identified by the public, whilst key stakeholders highlighted:
- the ongoing congestion on the M4
 - the adverse knock-on effect of congestion to the local network
 - a lack of adequate sustainable integrated public transport alternatives, and
 - that the existing transport network acts as a constraint to economic growth and adversely impacts on the local economy (CD2.3.7, CD4.3.5, CD4.3.21, CD4.3.22).
- 4.8 About 453 respondents commented specifically on public transport. Of these:
- 125 generally supported public transport measures that would help, but
 - 106 dismissed the idea that public transport improvements would help their travel needs (CD4.3.2).
- 4.9 Following this large collaborative consultation, design initiatives developed in 2013 included discussions between WG, HM Treasury and the

Department for Transport and crucially these resulted in potential funding opportunities for infrastructure projects in Wales arising. That led to the Welsh Ministers concluding that a new motorway to the south of Newport, in addition to complementary measures, should be progressed after assurances about funding were satisfactorily concluded with HM Treasury (CD4.3.15, CD4.3.17).

- 4.10 In July 2013, the new Minister for Economy, Science and Transport published her concerns about the M4 motorway in the following public statement:

“Addressing the capacity and resilience issues on the M4 around Newport is the top transport challenge that we face in ensuring that Wales has an effective economic infrastructure which improves our competitiveness and access to jobs and services. As a result of ongoing discussions with the UK Government there have been significant changes in the assessment of the affordability of major enhancement of the M4. Building on the extensive development and consultation work undertaken on the M4 corridor enhancement measures, we will be consulting formally over the summer with Natural Resources Wales in order to go out to public consultation this September with a finalised draft plan and a strategic environmental assessment report. If implemented, the draft plan would lead to a motorway being built south of Newport.” (CD4.3.22, CD4.3.23).

- 4.11 Appraisal work was rekindled and subsequently informed the development of a Strategic Draft Plan, Strategic Environmental Assessment and Environmental Report which were subject to public consultation, alongside other associated reporting between September and December 2013 (CD4.4.1, CD4.4.2, CD4.4.4, CD4.4.5, CD4.4.6, CD4.4.12).

- 4.12 Thousands engaged in the consultation, expressing support for and opposition to the prospect of a new motorway and in July 2014, taking into account the responses to the consultation, a Strategic Environmental Assessment post-adoption statement and associated reporting documentation was published (CD4.5.6, CD4.5.10, CD 4.5.13).

- 4.13 Also, in July 2014, a fresh preferred route was established and an associated TR 111 Notice issued to the local authorities (CD4.6.8).

- 4.14 In March 2015, a Judicial Review considered a claim that contended that the adoption of the proposed scheme should be quashed, initially on three grounds and principally because:

- the decision-making process that led to the adoption of the plan was unlawful in that, in a number of respects, it failed to comply with the Strategic Environmental Assessment Directive
- the Minister failed to take reasonable steps, consistent with the exercise of her functions to further conserve and enhance flora and fauna of the SSSIs over which the proposed route ran, as required by Section 28G of the Wildlife and Countryside Act 1981 (CD3.1.7), and

- the scheme failed to take account of WG's own policies with regards to reduction of carbon emissions.
- 4.15 The third ground was withdrawn by the claimant. The judgement found that the earlier decision taken by the Welsh Ministers to proceed with an M4 scheme, on the basis of the evidence before them, was rational and lawful. All grounds of challenge were dismissed (CD3.1.7).
- 4.16 That freed the way for the Minister's preferred scheme to be confirmed by a set of draft Schemes and draft Orders, with the associated Environmental Statement (ES) and other statements, being published progressively from March 2016; others followed, with the publication of the final draft Orders undertaken in August 2017. Thereafter, discussions with individuals and representatives led to agreed modifications to the Schemes and Orders emerging from the collaboration. (CD2.1.1-CD2.9.5, PIQ53).
- 4.17 In accordance with the Welsh Transport Planning and Appraisal Guidance (WelTAG), at the planning stage, an objectives-led approach, to address the 17 problems identified at the consultation stage, was adopted. The desired outcomes from that collaborative exercise, known as transport planning objectives, would underpin the strategic aims set for the scheme to:
- make it easier and safer for people to access their homes, workplaces and services by walking, cycling, public transport or road
 - deliver a more efficient and sustainable transport network supporting and encouraging long-term prosperity in the region and across Wales and providing access to international markets, and
 - produce positive effects overall on people and the environment, making a positive contribution to reduce greenhouse gas emissions and to make Wales a more resilient country to the effects of climate change (CD4.5.5, CD4.5.8, CD4.5.9, CD4.4,6).
- 4.18 The consultation-driven adopted transport planning objectives are to:
- provide safer, easier and more reliable east-west travel in South Wales*
 - improve transport connections within Wales and to England, the Republic of Ireland and the rest of Europe on all modes of the international transport network
 - enable a more efficient 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
 - facilitate the best possible use of the existing M4, local road network and other transport networks*

- facilitate reliable journey times along the M4 corridor*
- increase the level of choice for all people making journeys within the transport corridor by all modes between Magor and Castleton, commensurate with the demand for alternatives
- improve safety on the M4 corridor between Magor and Castleton
- improve air quality in areas next to the M4 around Newport*
- reduce disturbance to people from high noise levels, from all transport modes and traffic within the M4 corridor
- reduce greenhouse gas emissions per vehicle and/or person/km
- improve travel experience into South Wales along the M4 corridor. Produce an M4 attractive for strategic journeys that discourages local transport use
- improve traffic management in and around Newport on the M4 corridor
- provide easy access to key local services and residential and commercial centres, and
- encourage a cultural shift in travel behaviour towards more sustainable choices.

* *These objectives were the ones prioritised by the public.*

4.19 Alongside the transport planning objectives, the environmental objectives adopted were to:

- improve air quality in areas next to the existing M4 around Newport
- reduce greenhouse gas emissions per vehicle and/or person/km
- assist in the assurance that effective adaption measures to climate change are in place
- reduce disturbance to people from high noise levels, from all transport modes and from traffic within the existing M4 corridor
- provide assurance that biodiversity would be protected, valued and enhanced
- improve access to all services and facilities and reduced severance
- protect and promote everyone's physical and mental well-being and safety

- reduce transport-related contamination and safeguard soil function, quality and quantity
- minimise transport-related effects on surface and groundwater quality, floodplains and areas of flood risk
- use natural resources and energy in a prudent and sustainable way
- ensure that diversity, local distinctiveness and cultural heritage are valued, protected, celebrated and enhanced, and
- ensure the landscape and townscape are properly valued, conserved and enhanced.

The evidence of Mr Matthew Jones and Mr John Davies (WG1.1.1 & 1.23.1)

Legislation, Policy and Sustainability

- 4.20 Section 16(8) of the Highways Act 1980 requires the Welsh Ministers to give due consideration, before making a special road scheme, to the requirements of local and national planning policy, including the requirements of agriculture (CD3.1.5, ID259).

The Scheme's Compliance with Established Policies

- 4.21 The scheme would meet the requirements of a number of PPW national planning policies and would conflict with others. Policies are not absolute and schemes may proceed if in conflict with some. National policies, by definition, cover all manner and scale of development and for that reason explicitly allow exceptions, recognising that circumstances will arise which were not envisaged when they were originally written. In this case the exceptions would be more than counter-balanced by the great weight that should be applied to the alleviation of the serious congestion and the current problems associated with the M4 at Newport and the significant traffic, economic, environmental and social benefits that would accrue from the relief offered by the scheme. It would meet all but one of the planning policy definitions of the sustainable development principle and would satisfy the sustainability objectives defined in PPW. As such, it is clear that it would contribute to the well-being goals set out by WG (CD5.1.3, CD5.1.10, WG1.23.7).
- 4.22 PPW covers the conservation of the best and most versatile agricultural land and states that such land should be conserved as a finite future resource and only used where lower quality land is not available. The scheme would acquire such land but the chosen alignment would minimise interference with that category, with 84% of the agricultural land-take being from lower quality land (WG1.10.1, WG1.23.1, CD5.1.3, CD5.1.10, CD5.1.12, CD16.1.1, ID007d, ID136b, ID212).
- 4.23 PPW criteria allows essential highway infrastructure to traverse a flood prone area as an exception to the policy of preventing development in such areas. Funding has been confirmed to rectify the deficiencies in the

Stevenson Street defences, which currently threaten the scheme line. The scheme would have a neutral effect on potential flooding and the public benefits of it would outweigh the limited short-term conflict with TAN15 dealing with development in floodplains (CD17.2.2, CD17.2.14, WG1.10.1, ID156).

- 4.24 *The Planning and Compulsory Purchase Act 2004* places a duty on the National Assembly for Wales to prepare a *Spatial Plan*. The Wales Spatial Plan 2008 setting out the strategic development framework in Wales emphasises the importance of external connections to Cardiff, Bristol and London and internationally, to attract inward investment and a high-skilled, high-paid workforce. It identifies the need to alleviate the M4 congestion at Newport as a key strategic issue. The scheme would satisfy that (CD3.1.33, CD 5.1.1).
- 4.25 *One Wales: Connecting the Nation* sets out WG's Transport Strategy and describes the M4 between the Severn Crossings and Swansea as a vital link, with traffic levels well above its capacity. The scheme would address that (CD6.1.3).
- 4.26 Similarly, the *National Transport Plan 2010* describes the M4 between Newport and Swansea as a key corridor for the economy of South Wales, which suffers congestion during peak periods and is vulnerable to closures without available alternatives. The Plan targets investment to improve reliability, journey times and safety along the east-west road corridor in South Wales, an aspiration which is also highlighted in the *Wales Infrastructure Investment Plan 2012*. The scheme would remove the problems at Newport (CD6.1.5, CD5.1.5).
- 4.27 *The National Transport Finance Plan of 2015* (CD5.1.7), whilst not a binding policy document, identifies new road schemes and under the heading of *National Road Infrastructure – Schemes to be Constructed*, the scheme is described as:

Improvements to the M4 corridor around Newport – a new section of motorway south of Newport and complementary measures, including reclassification of the existing M4 between Magor and Castleton, a M48 – B4245 link and cycling and walking friendly infrastructure.

The scheme, with only a few alternatives, would fully meet that definition.

- 4.28 The Plan for the M4 corridor around Newport is thus identified as a strategic priority and forms part of WG's published current *Infrastructure Investment Plans*. This is confirmed in WG's Programme for Government for the next 5 years: *Taking Wales Forward 2016 – 21*, which states a commitment to deliver *an M4 relief road*, as part of the "United and Connected" strategy. The scheme would deliver that (CD5.1.4, CD5.1.7, CD5.1.11).
- 4.29 In September 2017 WG published its National Strategy: *Prosperity for All-the National Strategy*. This recent policy states that *Taking Wales Forward 2016 – 21* sets out the headline commitments WG will deliver up to 2021

and the Government's pledges for the Assembly term 2016 – 21, including those of working in a much more collaborative and integrated way (CD5.2.10, CD5.2.11, CD5.1.11, CD6.1.28, ID178).

- 4.30 The scheme would be totally compatible with the latest policy, which itemises the necessity to: "*deliver a significant improvement to the M4 around Newport*". This demonstrates the importance WG attaches to the project but the precise wording of the latest policy confirms that, whilst few of the alternatives put to the Inquiry could achieve this objective, the government recognises that the published scheme may not be the only one that could deliver the objectives of the 2017 national strategy. The wording is fully compatible with the project which would deliver a new section of motorway to the south of Newport and make significant changes to the existing M4. Having regard to the latest policy it is clear that the scheme would contribute thoroughly to the updated well-being objectives of WG, as detailed in tables 1 and 2 of PIQ /146.
- 4.31 The emphasis that the Government attaches to the building of an M4 improvement is historic and modern, as reflected in the 2017 Well-being Statement under Objective 11 to *deliver modern and connected infrastructure*. The scheme would contribute to objectives 1, 2, 3, 5, 6, 11 and 12 of the 2016 Well-being objectives and 1, 2, 3, 5, 6, 11 and 12 of the 2017 update objectives. By improving the M4 and hence improving the perceptions of Wales as a place to do business, the scheme would contribute significantly to well-being objective 12: *Promote and protect Wales' place in the world*.
- 4.32 The scheme has been prepared in accordance with the Welsh Transport Planning Appraisal Guidance (WelTAG), which assesses transport schemes in terms of three elements of sustainability – the economy, society and the environment. The scheme would be consistent with those three elements of sustainability namely:
- social: it would deliver enhanced accessibility to services and employment opportunities for people, whilst retaining a choice for road users
 - economic: it would deliver a more efficient transport capability for road traffic on the primary economic gateway to South Wales, to facilitate growth in regional and national prosperity would reduce transport costs for South Wales businesses locked behind the M4 impediment, and
 - environmental: it would prevent, reduce and where practicable offset any significant adverse effects on environmental receptors.
- 4.33 Following on from the *Government of Wales Act 1998*, the *Government of Wales Act 2006* reaffirmed a legal duty on the National Assembly for Wales to promote sustainable development. That duty preceded the development of the scheme which would have been undertaken in the full knowledge of the requirement for sustainable development. The 2009 policy - *One*

Wales: One Planet - confirmed sustainable development as the central organising principle of the then Welsh Assembly Government. The scheme is sustainable and would not need enhancement in the foreseeable future, it would improve the environment in Newport and would mitigate its ecological impact on the 2% of the Gwent Levels that would be affected by it (CD5.1.2, WG1.23.5).

Compliance with policies affecting Newport Docks

- 4.34 Policy and Regulation of Newport Docks is scheduled to be devolved to Welsh Ministers from April 2018. National government policy on new port development is set out in the *National Policy Statement for Ports* - Department for Transport, of January 2012. This recognises the essential role of ports in the UK economy and in local and regional economies. Government policy encourages sustainable port development to cater for long-term forecast growth in volumes of imports and exports. The scheme, in providing a more strategic access to the Newport Docks and including internal docks accommodation works and quay extensions, would fully comply with that policy (CD7.1.18, CD7.2.13, CD15.1.2, WG1.23.5).
- 4.35 The importance of Newport Docks is recognised in the *Wales Spatial Plan* and the *Wales Transport Strategy 2008* which highlights the provision of better road connections to the main freight ports. The scheme, in providing a high standard modern highway from the strategic highway network to Newport Docks by the proposed high-standard Docks Link Access Road, would fully comply with this policy (CD2.5.5).
- 4.36 TAN18 and the *Wales Transport Strategy 2008* equally seek to promote the carriage of freight by water rather than road and encourage retention of wharf and harbour facilities and the protection or provision of road access. The scheme, in extending the quays within the Docks, would fully conform with that policy. Similarly, Chapter 8 of PPW encourages the carriage of freight by water rather than road (CD6.1.2).

Compliance with the Well-being of Future Generations (Wales) Act 2015

- 4.37 PPW was updated in 2016, to ensure that ongoing national planning policies reflected the requirements of the WBFG 2015 Act. This stipulates that Public-body development must be sustainable and improve the economic, social, environmental and cultural well-being of Wales, by taking action in accordance with the sustainable development principle aimed at achieving the 7 well-being goals (CD3.1.18).
- 4.38 The sustainable development principle requires public bodies to:
- think more about the long-term
 - work better with people, with communities and each other
 - look to prevent problems, and
 - take a more joined up approach.

- 4.39 The last of the Well-being goals defined in the 2015 Act is: “a Globally responsible Wales”, and Part 2 of the Environment Wales Act 2016 places a duty on Welsh Ministers to ensure a reduction of 80% in net Welsh greenhouse gas emissions by 2050.
- 4.40 The scheme’s preparation predates the WBFG 2015 Act, but the working practices of WG previously adopted sustainable development principles, as far back as devolution. WelTAG, directed at its paragraph 2.4.4, that the development of schemes must promote sustainable development and take account of the three elements of sustainability underlying policy at that time – the economy, society and the environment. The Act carries no retrospective requirement but, if it had, the preparation of the scheme would have complied with the sustainable development principle. During the latter stages of the Inquiry, WelTAG 2017, based on the 2015 Act, introduced transitional arrangements for earlier schemes. As Ministers published draft Schemes and Orders for their preferred scheme in 2016, the scheme must be classified as having progressed beyond Stage 3 in accordance with the new WelTAG 2017. That arrangement was endorsed jointly in a publication before the end of the Inquiry by the Minister and the Future Generations Commissioner in 2018 (CD5.2.11, CD 6.1.28, CD6.1.29, CD6.1.30, ID/178).
- 4.41 The WBFG 2015 Act also defines the five “ways of working” that make up the sustainable development principle as:
- thinking long-term
 - taking an integrated approach
 - involving a diversity of population
 - working in a collaborative way, and
 - understanding and prevention.

An analysis of the compliance of the scheme with these 5 ways of working draws the following conclusions:

Thinking long-term

- 4.42 Statutory guidance for the WBFG 2015 Act suggests that best practice is to look 25 years ahead. The scheme would address the acute immediate need to alleviate established and growing congestion on the motorway but the long-term implications were fundamental to its assessment. This is borne out by the facts which show that:
- for traffic forecasting, modelling and capacity assessment the design year for the scheme is 2037
 - to account for climate change, the assessment of flooding was considered over a 100-year period

- the economic impact of the scheme was assessed over a 60-year period, and
- the ES has typically assessed short and long-term environmental impacts, taking account of short and long-term mitigation.

Taking an integrated approach

- 4.43 The three pillars of sustainable development policy – the economy, the environment and society – were integral to the objective-led WelTAG assessment process. It started by identifying problems and opportunities, then defined what was to be achieved, leading to a set of transport planning and environmental objectives. All emerging alternatives were assessed against these sustainable development objectives, in terms of the economy, health and equality and a strategic environmental assessment was produced.
- 4.44 The alternatives, including major public transport improvements and measures to encourage the use of alternatives to road transport, were presented to the public at consultations, leading to the December 2016 Updated Public Transport Overview confirming that the identified M4 problems could not be solved by public transport enhancement measures (CD2.4.19).
- 4.45 The substantial and agreed mitigation proposals at Newport Docks demonstrate the application of the sustainable development principle and ethos of the WBFG 2015 Act by working across policy boundaries, bringing marine and highway policy objectives together, whilst seeking a solution to the problems of the M4 (CD6.1.2, WG1.23.6, WG1.23.7).

Involving a diversity of the population

- 4.46 The WBFG 2015 Act states effective involvement of people and communities is at the heart of improving well-being and the people involved must reflect the diversity of the population. The development of the scheme involved extensive engagement with all sectors of the population and at different stages from 2010 to 2013. During each stage of consultation, engagement was made with local authorities, access groups, environmental groups, businesses, schools, and the general public were also heavily involved. The prolonged, extensive exercise, inevitably revealed opposing views of opposition and support, but the fact that some opposed the scheme does not mean that the scheme has failed to involve a diversity of the population in accordance with the sustainable development principle (CD2.3.2, CD 5.2.4).

Working collaboratively

- 4.47 To assess the options for a solution to the M4 problem and local issues WG took advice from and collaborated with:
- a succession of other public-sector bodies and national private companies

- the public extensively
- a wide range of interested organisations
- archaeologists and heritage experts
- numerous individuals at dedicated meetings which took place with the public
- landowners
- The Open Spaces Society
- The British Horse Society
- farmers and their agents and representatives
- Cycling UK
- Gwent Wildlife Trust
- Railway Paths Ltd (Sustrans)
- Parc Golf Club
- a long-standing Environmental Liaison Group, and
- the Design Commission for Wales.

This ongoing approach demonstrated the collaborative way in which the scheme has been and would continue to be developed (WG1.7.1, CD4.3.2, CD4.3.5, CD4.3.15, CD4.3.17, CD4.3.21, CD4.3.22, CD4.5.6, CD4.5.10, CD4.5.13).

Understanding and Prevention

- 4.48 The Act stipulates a thorough understanding of the issues in order to prevent adverse impacts developing. The scheme would be the culmination of decades of detailed work from which a clear solution to identifying and understanding problems has been developed, with sufficient capacity and sustainability built into it to prevent further problems occurring in the foreseeable future (CD4.1.1, WG1.5.1).

Satisfying the well-being objectives

- 4.49 The scheme would satisfy "well-being" objectives by:
- improving prosperity for all across Wales
 - helping people into employment and sustaining jobs
 - connecting communities through sustainable and resilient infrastructure

- fostering conditions for sustainable economic development and employment, whilst
 - stimulating innovation and growth for a modern low-carbon economy (WG1.1.1, WG1.2.1, WG1.3.1, WG1.1.13, WG1.1.23).
- 4.50 It has been designed to minimise the levels of construction carbon and the scheme would have a positive but small effect annually on user carbon emissions. Not removing congestion would have the opposite effect. Effectively, over-time, the scheme would be whole-life carbon neutral and would not hinder achievements of the longer-term targets to be set by WG under the Environment Wales Act 2016. The scheme would therefore align with WG's approach to greenhouse gas emission reductions by virtue of its design and the fact that it would achieve a reduction in annual carbon emissions both in the opening and design years (WG1.1.13, ID45, ID72).
- 4.51 In November 2016 WG published its five-year *Programme for Government: Taking Wales Forward 2016 – 21*. Alongside that program it published its well-being objectives under Section 3(2)(a) of the 2015 Act.

WelTAG 2017

- 4.52 In December 2017 WelTAG 2017 was published, combining the principles of HM Treasury guidance with best practice for transport appraisal. In particular WelTAG 2017 embeds the 2015 Act and is endorsed by the Future Generations Commissioner for Wales. It was accompanied by supplementary guidance on the 2015 Act and on the transitional arrangements for projects (such as this scheme) that had already been taken forward through WelTAG 2008 so that there is a clear and acceptable transfer of scheme development work from WelTAG 2008 to WelTAG 2017.
- 4.53 There is no stage in either procedure equivalent to the Public Inquiry into the case for a scheme already selected by Ministers as the preferred scheme for which draft Schemes and Orders have been published, which is the stage the scheme for the M4 corridor around Newport has reached. However, it is abundantly clear that to advance a scheme under the Highways Act 1980 to the Public Inquiry stage must mean that Stage 3 of the new WelTAG 2017 process has been fully completed because:
- a detailed assessment of the preferred option has been completed
 - a full business case has been prepared, and
 - a decision has already been made by Welsh Ministers to proceed through the statutory procedures necessary to implement the chosen published scheme.
- 4.54 It is obvious therefore that the scheme, if confirmed by Ministers, would progress under WelTAG 2017 to the *post appraisal stage* - the implementation of the preferred solution (WG1.23.1, ID/178).

4.55 It is equally clear that the scheme development process followed the WelTag 2008 process and national (UK) best practice and the business case followed HM Treasury guidance, on which WebTAG 2017 is now based. The WelTAG 2017 guidance is a framework for thinking about proposed changes to the transport system and a process of evaluating options for making interventions to deliver a more sustainable transport system for Wales. It is the mechanism for providing decision-makers with all the information they require to make a reasoned and auditable decision on all funding decisions. However, it is not a substitute for decision-making but a process of gathering information and assessing the impact of options. The development of the scheme over the years has followed these principles (ID/178, ID/198).

The draft Marine Plan (published in December 2017)

4.56 The scheme:

- in recognising the developments associated with the "Hold the Line" policy and flood defence work at Stephenson Street, Newport, would accord with the guidance of the Plan
- in *safeguarding established shipping routes and supporting sustainable growth in the shipping and ports sector* would conform to the strategic priority for protecting sustainable growth and expansion in terms of marine planning set out in the Marine Plan (CD5.1.15, ID178).

Other national planning policies

4.57 Neither the Climate Change Act 2008 nor the Environment (Wales) Act 2016 require specific projects to be subject to emission reduction targets but rather they seek to establish a trajectory of overall emissions reduction, recognising that this requires a cross-cutting approach across all sectors. In that regard and recognising that the scheme has been designed to minimise construction carbon and enable a small reduction in annual user carbon emissions it would comply with WG's policies on Climate Change and the reduction of greenhouse gas emissions (WG1.13.1, WG1.13.2, ID/100).

4.58 The scheme would conflict with planning policies in respect of cultural heritage, landscape, ecology and nature conservation. In so doing, it would fail to meet the fourth part of the planning policy definition of the sustainable development principle in PPW (paragraph 4.3.1 of PPW), although it would meet all others.

The Active Travel (Wales) Act 2013

4.59 The Act requires Welsh Ministers, in the performance of functions under the Highways Act 1980, *to take reasonable steps to enhance the provision made for, and to have regard to the needs of, walkers and cyclists and to have regard to the needs of walkers and cyclists in the exercise of certain other functions.* The scheme, which incorporates routes for all non-

motorised users, including walkers and cyclists, has been designed to accord with the Act and Plan (CD3.1.15, CD15.2.1).

Local Planning Policies

- 4.60 The scheme would be compatible with local planning policies and has been highlighted in the Newport LDP as *a key element for Newport*. The route of the scheme has been protected from development both within the City of Newport and within the Monmouthshire County LDP. It features in the Monmouthshire County and Newport City Councils' Local Transport Plans (CD15.1.1, CD15.1.2).

The evidence of Mr Bryan Whittaker (WG1.2.1)

The justification for the scheme

The current unacceptable road and the growing traffic problem

- 4.61 The M4 around Newport, part of the Trans-European Road Network, is the most heavily used road in Wales and is critical to the Welsh economy. It provides access to industry, ports and airports and serves the Welsh tourism industry. It is the main gateway to England and the rest of Europe. It does not meet modern motorway design standards and, as a Newport by pass, carries a greater volume of traffic than it was originally designed for. Between Junction (J) 25 and J26 it is constrained in a dual 2-lane tunnels without hard-shoulders, with considerable lengths of severely substandard 3-lane carriageway either side of the tunnels (PIQ009, ID18).
- 4.62 Between J24 and J28 the combinations of steep gradients, frequent junctions, inadequate merging and diverging lanes, intermittent hard-shoulders, adjacent retaining walls, substandard horizontal and vertical alignments, sometimes in combination and a succession of lane drops and lane gains restricts throughput and precipitates crashes. This causes a spillage off the motorway onto less suitable local roads as the demand is not met by capacity and a lower restrained throughput occurs. In other words, the natural traffic demand for use of the M4 is actually greater than the flow which can currently use the inadequate highway. This significant degree of sub-optimum highway standard is illustrated by ID18 which demonstrates that between Magor and Castleton half its length has no, or sub-standard, hard-shoulder provision (ID18).

- 4.63 Clearly the existing M4 has been under continual stress for some years and that has led to unacceptable conditions with average speeds often less than 50 mph widespread throughout the day and below 30 mph in the morning and evening peak periods, when traffic crawls. In 2015 alone, *Traffic Wales* recorded 1,053 occurrences of day-to-day congestion. A significant number of incidents (often not recorded on accident data bases because they do not involve personal injury), many causing serious disruption occurred throughout 2016 and 2017. These completely gridlock the local network in Newport and often the strategic network for miles either side (WG1.2.1 Table 3.2, WG1.2.8, PIQ09, PIQ18, PIQ86, PIQ87, PIQ91, PIQ92, PIQ110, PIQ136, PIQ143, ID170).
- 4.64 The motorway can no longer satisfactorily carry traffic in the peak hours or in the approach to those peaks, whilst actual traffic counts demonstrate constant growth and an ever-increasing problem of congestion. An analysis of data (April 2016 – March 2017) carried out by the independent company INRIX demonstrated that the M4, between J25 and J26, was the fourth most congested stretch of urban motorway in the UK and would rank within the top 50 traffic hotspots across Europe. Over that 12-month period some 1,477 traffic jams occurred on that stretch of motorway, which equates to about four per day on average, statistics that are consistent with observations and demonstrate the growth in congestion. This congestion cost drivers a total of £31 million in lost time (WG1.2.6, PIQ091).
- 4.65 The congestion evident during weekday peak periods, and at other times, results in slow, unreliable journey times and stop-start conditions with ad hoc, frequent and unpredictable incidents. These cause extra delay and congestion on the motorway, which rebounds onto the surrounding local road network, as drivers gridlock the alternative urban network in an effort to negate the motorway congestion, uncertain incidents and delay. This exposes the M4's inability to be reliable and resilient in the face of ever-increasing demands for its use and introduces potential safety issues on the local spill-over network. The current situation is not sustainable (S207).
- 4.66 Traffic speeds in the peak and non-peak periods are usually well below 70 mph whilst traffic is growing year on year. This is not inconsistent with the findings of a national broader review of Welsh motorway speeds which was assessed in April-June 2016 (Tables 3.2 and 3.3 of WG1.2.1, WG1.2.6, ID/065).
- 4.67 Since 2010, a wide range of stakeholders with an interest in transport on the M4, including the industrial and business community, have been actively engaged with WG in identifying problems, setting objectives and considering a range of possible solutions. More recently stakeholders have been encouraged to respond to the draft Orders, ESs and associated reporting and this long-standing collaborative approach has resulted in significant and valuable feedback to WG which identifies the congestion on the M4 as a barrier to economic growth in South Wales. All sizes of businesses and local authorities across South Wales recognise the serious

congestion and reliability problem and that it needs to be addressed urgently (PIQ009).

- 4.68 Residents of Newport close to the existing M4 experience poor air quality directly from emissions from daily stand-still traffic. Four out of the seven Air Quality Management Areas (AQMAs) designated by the Newport City Council are associated with the M4.

The future traffic problem and the limitations of public transport and modal-shift

- 4.69 New National roads are designed to cater for traffic flows 15 years after opening, in this case 2037 (revised during the Inquiry to 2039). * This future traffic was predicted by a purpose-built variable demand model, fed by mobile phone data, supplemented by roadside interviews and traffic surveys. This model complied exactly with the recommendations of the SACTRA report and included an element of induced travel in its projections, whereas earlier models did not. A corresponding public transport model, fed by passenger surveys was simultaneously constructed. The demand within the road traffic model was split according to journey purpose and vehicle type, as specified by WebTAG guidance. The approach is entirely consistent with the March 2017 Department for Transport's trip-end model projections (TEMPRO 7.2), use of which constitutes government policy.

Inspector's Note*

The slippage of 2 years occurred because of the need to undertake extensive accommodation works within Newport Docks prior to the start of construction of the proposed Usk viaduct through the Docks.

- 4.70 The model included all currently programmed road improvement schemes scheduled for completion by the years 2022 (opening year) and 2037 (design year) respectively and was run with and without the scheme in place (CD2.4.19, WG1.2.1, PIQ04, PIQ017, para 2.12, 2.15).
- 4.71 The traffic model also included the proposed public transport upgrades in respect of the:
- Great Western route modernisation, including electrification of the main line from London to Cardiff by 2017
 - the opening of new stations on the Valley lines (South Wales Metro phase I), and
 - Valley lines electrification (South Wales Metro phase 2).
- 4.72 The inclusion of the improved rail services on the Valley lines in the model, in terms of journey time and service frequency improvements, ensured that account was taken of those aspects of the South Wales Metro that would reduce traffic on the M4. Both the road-based and public transport models were subjected to validation tests, with predicted flows checked against observations. How the models responded to changes in journey

costs was also assessed. Both models proved satisfactory, with road traffic matches falling well within the bounds of WebTAG requirements and the public transport model satisfying the realism criteria of current guidance (CD2.3.9, WG1.2.1, CD2.4.19, PIQ017 para 2.26).

- 4.73 The feasibility of resolving the M4 problems through public transport and active travel measures was explored in detail during the M4 consultation process. In 2013, an appraisal concluded that doubling public transport utilisation in and around Newport would only remove 5% of the motorway traffic. With phases 1, 2 and 3 of the Metro and the park-and-ride scheme at Llanwern in operation the PM Peak hour motorway flows would only abate by 4%. This analysis was progressed further to include an assessment of the impact of rapid-bus transport in Newport with similar results. The public transport measures, which have been assessed in ID 73, include all which are feasible and which would bear on east-west traffic. Ever increasing provision of public transport would be faced with the prospect of diminishing returns and no public body would invest in measures whose returns would be low initially and leave the more affordable and attractive public transport measures until later. With ambitious assumptions in favour of the efficiency of public transport, the abstraction from the M4 would only be about 6% but some of that abstraction is already included in the scheme's traffic model (WG4.3.16, WG2.4.19, ID73).

Historic traffic growth patterns and existing daily traffic

- 4.74 The surveys and analysis proved that from 1989 to 2007, whilst traffic flows in inner-city areas abated, there was sustained growth on all sections of the strategic road network in England and Wales and in particular on the M4 motorway between J23 and J29, with the exception of that length through the Brynglas Tunnels in the mid-1990s. That exception is explained by the opening of the A4042 Brynglas Tunnel Relief Road. Nationally there was a reduction in motorway traffic during the global economic recession in 2008 but by 2011 growth had reappeared. On the M4 at Newport there has been significant and continuous growth over the whole of the 2011 – 2016 period which, although higher than the average UK motorway growth over that period, was generally consistent with it (WG1.2.1 Table 3.1, PIQ/018, PIQ /092).
- 4.75 An analysis for the years 2011 – 2016 has demonstrated conclusively how the continuous growth of traffic on the motorway compares off-peak to peak periods and demonstrates that the scale of growth on weekdays in October is broadly in line with growth based on annual average daily traffic. The exception is at the Brynglas Tunnels, where “capacity-restraint” and peak hour delays have restricted growth through the tunnels. Growth in the morning and evening peak periods is lower than during the inter-peak or off-peak periods but there is still a substantial growth over the period 2011 – 2016 throughout those periods. A detailed analysis indicates that there has been a shift in the time at which people travel on the M4 around Newport in order to avoid the most heavily congested times, which proves that traffic demand has not peaked on the motorway at any time of

day. That is entirely consistent with the regular pattern of traffic growth on the M4 over recent years throughout the day, the observation of growth on alternative local roads in the peak periods and the evidence of locals (WG1.2.1, PIQ /092).

- 4.76 Tables 1 and 2 below show the rounded traffic flows from 2011 to 2016 and the percentage increases year on year respectively (PIQ018).

Table 1: M4 Two-way AADT* actual flows - vpd** (figures rounded)

Section	2011	2012	2013	2014	2015	2016
J23a-24 *	77,500	76,700	78,200	77,700	80,400	82,200
J24-25	92,800	92,400	94,100	97,000	99,600	101,200
J25-26	70,600	72,900	73,700	75,400	78,600	78,900
J26-27	101,800	103,100	104,200	106,400	111,200	114,900
J27-28	99,400	101,200	102,500	105,300	109,200	111,600
J28-29	103,400	104,500	106,100	109,400	114,500	117,800

*[AADT-annual average daily traffic. vpd-vehicles per day].

Table 2: Historic Traffic growth (year on year) for the years 2011-16 - %

Section	<u>2011-12</u>	<u>2012-13</u>	<u>2013-14</u>	<u>2014-15</u>	<u>2015-16</u>	<u>2011-16 total</u>
J23a-24**	-1.1	2.0	-0.6	3.4	2.3	6.1
J24-25	-0.4	1.8	3.1	2.7	1.6	9.2
J25-26	3.2	1.1	2.3	4.3	0.4	11.8
J26-27	1.2	1.1	2.1	4.5	3.3	12.8
J27-28	1.9	1.2	2.8	3.7	2.1	12.3
J28-29	1.1	1.5	3.1	4.7	2.9	14.0

** These traffic counts identify that the AADT flows on the section between Magor and the Coldra (J23a – J24) experienced a period of low growth (reduction) in traffic flow in the period 2013 – 2014. That coincided with the opening of the A4810 Queensway, which now links southern Newport with the M4 at J23a and which siphoned off previous motorway flows from that section. Major works disrupted traffic on the M4 before 2011. Traffic counts taken before that date would be unreliable in assessing growth patterns along the motorway. From 2011 to 2015 the percentage growth rates per annum indicate that there has been steady growth on all sections following the completion of those works. January is the month with the lowest traffic flows, being 10 to 15% lower than an annual average on each section. Generally, relative to the winter months, there are significant increases in traffic from May until December of each year.

- 4.77 In July 2017, the Secretary of State for Wales announced that the Severn Crossings tolls would be abolished by the end of 2018. The traffic forecasting models were updated to reflect that and indicated that the

effect of the removal of tolls would result in a maximum increase of about 21% in the two-way annual average daily traffic on the existing M4 in 2022. That would reduce to a maximum of about 16% increase in 2037 (WG1.2.7, ID/141, ID/170).

- 4.78 The results show that, with the scheme in place, there would be a maximum increase on the existing M4 of about 17% in the two-way AADT flows in 2022, reducing to about 13% in 2037. The new section of motorway would receive an increase of about 10% in 2022, increasing to 12% in the PM peak period. Increases of between 4% and 8% would occur in 2037 (WG1.2.7, ESS6 of October 2017).

The tables below take account of the removal of tolls.

Future Traffic Predictions for 2022 (the original predicted opening year)

- 4.79 Tables 3a and 3b below show:

- the predicted (central growth) two-way traffic flows on the existing M4 both with and without the scheme in place and with and without toll removals (CD2.4.13, ESS6).
- the design flow ranges taken from Technical Advice Note TA 46/97 which defines the maximum theoretical carrying capacity for a dual carriageway motorway of varying numbers of lanes in comparison with the predicted loading, and
- the predicted traffic for 2022 which was the original envisaged opening year for the scheme. That slipped to 2024 during the latter stages of the Inquiry. Therefore, the flows set out in the table should be inflated by 3.4%, (1.7% pa) to obtain the new predicted year of opening.

Table 3a: Existing Motorway flows - vpd in 2022 (figures rounded)

<u>Junctions</u>	<u>29-28</u>	<u>28-27</u>	<u>27-26</u>	<u>26-25A</u>	<u>25A-25</u>	<u>25-24</u>	<u>24-23A</u>
Do minimum	118,000	111,000	111,300	76,200	98,300	107,000	89,100
Do minimum*	118,200	111,200	112,900	76,300	98,500	106,900	89,200
<hr/>							
Do minimum**	119,200	112,700	114,800	78,600	101,600	110,600	97,200
[With tolls removed this is the traffic loading which would be experienced on the existing M4 in 2022]							
<hr/>							
With new M4***	67,000	68,000	71,300	45,100	33,200	58,500	39,500

[With the scheme opened this is the traffic loading on the existing M4 in 2022, overall about 50% less than at present].

Note. In Table 3a above:

- the Do minimum figures relate to the October 2017 situation, with full tolling of the Severn Crossings
- the Do minimum * figures relate to the position that would have occurred had the tolls been halved, as reported to the earlier part of the Inquiry
- the Do minimum ** figures relate to the position at the end of the Inquiry that is predicted to occur with tolls removed post 2018 (ID/170)
- the with new M4 *** figures show the residual-traffic on the existing motorway with the scheme opened and tolling removed, (ID/170), and
- all the figures above assume the incorporation of the eastbound off slip road at Magor but no westbound on-slip (CD2.4.5 & later CD2.5.2, PIQ019).

Table 3b: 2022 traffic on existing motorway without the scheme constructed in comparison recommended maximum theoretical design flow (capacity indicator) ranges from Advice Note TA46/97 - with tolls removed from the Severn Crossings

<u>Junctions</u>	<u>29-28</u>	<u>28-27</u>	<u>27-26</u>	<u>26-25A</u>	<u>25A-25</u>	<u>25-24</u>	<u>24-23A</u>
TA46/97 range	67,000	67,000	67,000	41,000	41,500	67,000	67,000
Predicted Do mini**	119,200	112,700	114,800	78,600	101,600	110,600	97,200

Comparing the predicted 2022 Do minimum** demand flows above with the opening year design flow recommended ranges gives an indication of the severe degree of overload which the existing motorway would exhibit if no relieving scheme is built, relative to acceptable modern motorway design parameters (PIQ019, paragraph 2.6, ESS 6 section 3).

Should the opening of the scheme be delayed from 2022 to 2024 a 3.4% growth in flows would be observed in the opening year and all future years relative to the figures defined in these tables, thereby increasing the degree of theoretical overload on the existing motorway (WG1.2.8).

Table 4: Proposed New Motorway flows in vpd (figures rounded) in 2022

Table 4 shows the traffic loading on the proposed year of opening on the three sections of the proposed motorway.

<u>Junction 29 - Docks Access</u>	<u>Docks Access - Glan Llyn</u>	<u>Glan Llyn - J23A</u>
57,100	61,300	63,100

TA 46/97 specifies a maximum flow range should not exceed 67,000 vpd in the opening year, so all predictions would lie comfortably within the recommended flow range (PIQ 019, ID/170).

Should the opening of the scheme be delayed from 2022 to 2024 a 3.4% growth in flows would be observed in the opening year and all future years relative to the figures defined in these tables. The year of opening flows would remain below the maximum flow range for the opening year and be acceptable (WG1.2.8).

Table 5: Future Traffic Predicted in 2037 (the original adopted design year)

Table 5 shows the predicted two-way traffic flows on the existing M4 both with and without the scheme in place, assuming central national growth factors (CD2.4.13, WG1.2.7, WG1.5.6).

Existing Motorway – two-way AADT vpd (rounded) in 2037

Junctions	29-28	28-27	27-26	26-25A	25A-25	25-24	24-23A
Do Minimum	136,400	128,500	130,700	90,400	117,000	127,300	111,700
TA46/97 range	67,000	67,000	67,000	41,000	41,500	67,000	67,000
With new M4 open	78,000	84,100	88,700	59,500	45,700	74,600	50,300

With delays to the opening of the scheme of about two years, the design year would slip to 2039. In such circumstances the predicted traffic flows for that year would increase relative to the 2037 situation by about 3.4% (WG1.2.8).

Table 6: Proposed Motorway – two-way AADT vpd (rounded) in 2037

	<u>Junction 29 - Docks Access</u>	<u>Docks Access-Glan Llyn</u>	<u>Glan Llyn-J23A</u>
With tolls removed	69,900	75,800	79,600

With delays to the opening of the scheme of about two years the design year would slip to 2039. In such circumstances the predicted traffic flows for that year would increase relative to the 2037 situation by about 3.4%.

Note: the flow ranges quoted in TA46/97 are for the opening year. For the dual 2-lane all-purpose trunk road carriageways that would carry the Docks Way Link Road and Glan Llyn Link road TA46/97 specifies a maximum opening year flow of 39,000 vpd. The predicted demand flow for both these links would be about 23,500 and 10,000 vpd respectively in 2022 - well within the range of acceptability.

- 4.80 The tables above illustrate the severe degree of additional burden that would occur on the existing severely sub-standard road by the design year without the scheme in place.
- 4.81 In broad terms, a modern dual 3 lane motorway built to standards should be capable of carrying about 110,000 vpd (depending on the proportion of HGVs, gradients, cross section etc) without a frequent occurrence of break in free flow. The scheme, once constructed:
- would effectively halve the traffic that uses the existing M4, thereby providing significant spare capacity for future growth, and
 - provide a modern motorway running broadly parallel to the existing M4 that would also have significant reserve capacity to deal satisfactorily with flows well into the future beyond the design year (PIQ143).
- 4.82 In contrast to the current and worsening situation, the scheme would provide long-lasting reliability and resilience to the strategic road network at Newport, a reserve of capacity beyond 2039 on the new and existing roads, future strategic sustainability and, in reducing urban traffic within the City, would provide immediate local benefits and long-term local sustainability also (WG1.2.1, WG1.2.7).

- 4.83 The imminent removal of tolls from the Severn Crossings would increase current (2018) traffic on the M4 at Newport and further decrease speeds between J23 and J29 throughout much of the day. However, the proposed scheme would have the necessary reserve capacity to cope with those additional flows from a toll-free M4, without delays occurring in the peak and non-peak hours (PIQ 018, PIQ143).
- 4.84 Through traffic using the new section of motorway between Magor and Castleton would experience significant journey time savings due to a combination of the shorter distance and reduced congestion. In the design year the time savings compared to the do-minimum situation in an eastbound direction would be about 9.5 minutes in the morning peak hour, 4.5 minutes in the interpeak and 6 minutes in the afternoon peak hour. In a westbound direction the time savings would be about 8 minutes in the morning peak hour, 3 minutes in the interpeak period and 7 minutes in the afternoon peak hour (WG1.2.7).
- 4.85 Currently the M4 at Newport is "fed" by traffic from the M48 and M4 acting in combination east of J23 and the M4 and A48M acting in combination west of J29. Outside the Newport area this system of motorways works well with reserves of theoretical capacity when compared with current demand. With the scheme in place the network either side of Newport would retain reserves of capacity:
- east of J23, where the 2032 demand of about 118,800vpd would be accommodated by the network capacity from the two motorways of about 172,200vpd, and
 - west of J29, where the 2032 demand of about 148,000vpd would be accommodated by a main network capacity of about 207,000vpd.
- 4.86 These figures illustrate that even though the scheme would marginally increase traffic in the M4 corridor it would not cause congestion either to the east or west (PIQ/143).

The accident and incident justification for the scheme

- 4.87 Since the introduction of variable speed limit signage on the Newport section of the M4 in July 2011, until 2016 there have been 3 fatalities, 12 serious collisions and 138 slight accidents between J23 and J29. The rate of fatal and serious collisions is slightly less than the national average but the rate of slight collisions is slightly higher. In the round, today, the overall personal injury accident rate on the M4 between J23 and J29 reflects the national motorway average for Great Britain. It is marginally below average on some sections and marginally higher on others. However, the rate of collisions in the peak hours is approximately double that of the inter-peak, suggesting that, as flow traffic density increases collisions would increase on this substandard section of motorway. It is also noteworthy that the reported accident rate within the urban environment of Newport is relatively high in UK terms, a fact that perhaps reflects the frequency with which that urban network is burdened by traffic

forced to divert from the motorway. The accident rates do not include non-personal injury crashes which are frequent along this stretch of motorway (WG 1.2.1, PIQ 87).

- 4.88 With the predicted growth of traffic to the design year, the current peak hour density of traffic would spread, thereby elongating peak hour conditions through much of the inter-peak periods of the day. Should that occur, collision rates could substantially increase to reflect the current peak hour intensification of collisions and that, in turn, would mean that the M4 near Newport would carry an accident rate significantly greater than the national average for Great Britain. The removal of tolls from the Severn crossings would increase traffic pressure, which would potentially increase accidents.
- 4.89 Without accounting for the "toll-free induction of traffic", the traffic model indicates that 300 accidents would be saved over 60 years. The proposed motorway would be built to modern safety standards, but without it the severely substandard existing motorway, carrying significantly more traffic, would be vulnerable to disproportionately more accidents than theoretically predicted by the model (WG1.2.1).
- 4.90 Apart from casualties that are systematically recorded by the police, there is clear evidence that the M4 is burdened by an abnormally high number of non-recorded and unpredictable incidents which block or obstruct the motorway throughput causing delay, frustration, economic harm, pollution, inconvenience, negative perceptions of the area and diversion onto unsuitable urban roads. In 2015, an analysis of data shows that there were 82 specific incidents which led to disruption of more than 20 minutes on the M4, on average, one every 4.5 days. This abnormally high trend has continued throughout the period of the Inquiry and will continue unless the motorway is relieved (WG 1.2.1, ID/015).

The Evidence of Mr Ben Sibert (WG 1.5.1, WG1.5.7)

The Proposed Solution - Broad Description of the Scheme

- 4.91 Figures 2.4-2.6 of the ES illustrate that the scheme would:
- pass to the south of Newport as a high standard modern 23km long dual three-lane motorway, between J23 near Magor and J29 at Castleton
 - be carried on long approach viaducts that connect to a high bridge spanning over the River Ebbw, the Newport Docks and the River Usk
 - connect with two all-purpose dual carriageways through intermediate junctions, one serving Newport Docks via the A48 Southern Distributor Road (SDR) and the other the Glan Llyn/Tata Steelworks areas via the A4810
 - downgrade the status of lengths of the existing M4 and M48 to

that of rural all-purpose trunk roads

- enable the existing M4 J25 and J25A to be reconfigured to reconnect the downgraded motorway with the local road network more efficiently thereby relieving central Newport
- provide a new eastbound connection to the Motorway Service Area (MSA) at Magor, and
- provide improved connection between the M48, M4 and B4245 near Magor (WG1.5.1, CD2.3.6, CD6.2.1, CD6.2.27, CD6.2.34, PIQ098).

Detail description of the Scheme

- 4.92 In the west, the existing M4/A48M interchange at Castleton would be modified to incorporate a dual three-lane motorway with free-flowing links which would give priority to the proposed motorway, whilst providing access to and from the existing A48M. The existing M4 motorway to the east of the interchange would be reclassified as an all-purpose trunk road to J23a. The Castleton interchange would include a replacement footbridge, road bridges, underpasses, pipe culverts and retaining structures. Three existing structures would be demolished (WG1.5.5, CD2,5,5, CD4.6.8, CD6.2.1, CD6.2.4,).
- 4.93 Immediately east of Castleton the motorway would diverge from the existing M4 to the south of Berry Hill Farm, to pass beneath a realigned Church Lane to the north of Coedkernew and south of Duffryn. Percoed Lane would be bridged over the new motorway, which would then cross over the South Wales to London railway and continue eastward on low embankment across the Wentlooge Levels. Overbridges would carry Lighthouse Road and provide access for New Dairy Farm and the Wales Coast Path.
- 4.94 To the east, the motorway would bridge the River Ebbw, on a rising viaduct, and pass to the south of the Docks Way landfill site, before curving north-eastwards towards Newport Docks. There a new grade separated Docks Way junction would sit beneath the motorway and be linked by a dual 2-lane carriageway to the A48 SDR and, via that road, to the existing Docks access. The motorway would continue on an increasingly prominent cable-stayed structure through and over the Docks and the River Usk, before descending across the industrial quayside area of Corporation Road on a viaduct to run to the south of the Solutia Chemical Works on a low embankment. The potentially dangerous Solutia PolyChlorinated biphenols cell would be bridged over by use of an innovative transverse cross head structure to carry the eastern approach viaduct over the hazard. Details of this are set out in PIQ057 (CD2.5.5, PIQ/093).
- 4.95 East of the docks the alignment would follow a left-hand curve across the Caldicot Levels, with a new bridge over the diverted Nash Road to enable it to form a new junction with Meadows Lane. Further east the scheme would

cross part of the Caldicot Levels on low embankment to a new two-level junction at Glan Llyn from which a dual carriageway connection would be made to the A4810, and via it to the Tata steelworks (WG1.11.1, CD2.5.5, CD4.6.8, CD6.2.4).

- 4.96 From this grade-separated junction, the motorway would run easterly, generally parallel to the A4810 and to the north of the large Whitson electricity substation. New bridges would be provided for the diverted lengths of North Row and Bareland Street, beyond which the motorway would rise on embankment to cross over the main South Wales to London railway. An eastbound off-slip road linking to the B4245 (Magor Road) and thereafter to the existing motorway approach of the Magor Motorway Service Area (MSA) would be constructed, with the B4245 bridged over the proposed motorway to form a new roundabout junction with the A4810. Nearby, the existing Wilcrick Road maintenance depot would be demolished with a replacement established at Glan Llyn.
- 4.97 Near St Brides Road, the motorway would merge with the existing M4 immediately east of J23A. A new section of dual carriageway would be constructed to the north of, and parallel with, the existing M4 from Junction 23A, eastwards to a new Junction 23, with bridges carrying Knollbury Lane and Rockfield Lane across the motorway. A complex junction, known as a "hamburger" would be provided to facilitate links between the M4, M48 and local roads (WG1.5.1, CD2.5.5).

The River Usk viaduct and Newport Docks

- 4.98 The structure would be 2.1 km long crossing over the Newport Docks, the Rivers Usk and Ebbw, and the industrial areas around Stephenson Street and Corporation Road. It would consist of approach viaducts from the west and east, joined by a 752m long central cable-stayed bridge which would have a 440m main span. The west approach viaduct would be 512 m long, supported by 7 piers. The east approach viaduct would be 888 m long, supported on 12 piers. The cable-stayed bridge would be supported on two towers each 146m high. (WG1.5.1 Fig 6, CD2.4.20, CD6.2.24, CD6.2.33 PIQ12, PIQ14, PIQ019, PIQ57).

The impact of the scheme on Newport Docks and remedial measures

The evidence of Mr Jonathan Vine, Mr Matthew Jones and Mr Andrew Meaney

- 4.99 Associated British Ports (ABP) holds the *Statutory Undertaking* at Newport Docks but tenants out much of the facilities to private companies. The cargo port has two docks, the larger South Dock which has direct access to the Severn Estuary via lock guarded dock gates and the smaller North Dock that gets access to the sea via the South Dock. The north and south docks are connected by a 19.5m wide masonry retained channel known as the Junction Cut (WG1.1.8, WG1.1.9, WG1.22.5, WG1.22.6, ID239, PIQ129).
- 4.100 The massive warehouses and open areas facilitate substantial businesses

alongside the quaysides and are optimally located to accept or dispatch cargo and are served by rail, road, mobile or static cranes and tight security overseen by The Port Security Authority. Shipping is controlled by the Newport Harbour Commissioners, working with ABP. Following collaborative discussions all three authorities are content with the package of proposals advanced by WG to off-set the impact that the construction of the scheme would otherwise have on the undertaking of the port (WG1.4.1 WG1.1.8, WG1.1.9, ID/172, PIQ32).

4.101 The construction of the M4 viaduct through the docks would necessitate the demolition of established buildings and facilities and require many of them to be relocated as conveniently as practicable. Detailed collaborative agreements with ABP and the majority of owners and tenants have produced temporary or permanent relocation plans and replacement facilities. This includes 303m of new quayside in the South Dock with refurbishment of 250m of existing quay in that dock, the justification and details of which are set out in WG1.1.8 and WG1.22.5, together with acceptable and agreed working and management practices (PIQ12).

4.102 In order to reduce, to an acceptable level, the risk of impact to the viaduct by large ships and remove the detrimental impact to the undertaking of the docks, that would otherwise occur, it would be necessary to ensure that:

- the quayside adjacent to the Junction Cut (which links the two docks) is extended southwards by 50m away from the edge of the viaduct
- the extension of that quayside is backfilled and compacted
- the entrance to the Junction Cut is reduced to 13.5m by approach fendering (to restrict large ships trying to enter the North Dock-ID239)
- a form of controlling "virtual trip wire" is established at the dock lock to alert the Authority of any potentially over-height shipping so that its passage could be monitored.
- a movable swing-bridge across the Junction Cut to compensate for the blockage of current movement of movable harbour cranes, other port equipment and HGVs is provided
- the preparation of 3 parcels of land and provision of premises to facilitate the relocation of the port facilities and ABP tenants that would be affected temporarily or permanently by the scheme, or by the restriction on shipping accessing the North Dock, including site preparation, new buildings, hard-standings and infrastructure is advanced before viaduct construction starts
- the establishment of a suitable area and location to accommodate the relocated Origin UK Operations Ltd site which would require both a hazardous substances consent from the Health and Safety

Executive, and planning permission from Newport City Council proceeds (WG1.11.5)

- the potential to establish suitable sites for A1 Skips in a location suitable to enable it to secure a new environmental permit under the Environmental Permitting Regulations (England & Wales) 2016, from the NRW is progressed, and
- the storage of plant and material beneath the bridge is subject to control on the type of material, stacking heights are restricted to 5m and fire protection has been applied to the steel bridge girders above.

4.103 A number of consents would be needed. It is intended to rely on powers afforded to ABP (which would need to be exercised by ABP) under Section 24 of the *Alexandra (Newport) Docks Act 1865*, Section 5 of the *Alexandra (Newport and South Wales) Docks and Railways Act 1882* and Section 5 of the *Alexandra (Newport and South Wales) Docks and Railways Act 1904*, along with rights in Part 2 of the *Town and Country Planning Act GDO 1995* for the majority of the works.

4.104 The Secretary of State's consent (which devolves to Welsh Ministers in 2018) may be required for the exercise of some of ABP's Private Act powers. This is because:

(a) either the powers on which ABP would rely are subject to the provisions of the *Harbours Docks and Piers Clauses Act 1847*, Section 12 of which requires the consent of the Secretary of State for Transport in respect of some of those works, or

(b) the Private Act powers relied upon have their own requirements for Secretary of State consent. In these regards the Secretary of State's functions will devolve to Welsh Ministers pursuant to the Wales Act 2017.

4.105 In conjunction with consent under the various Private Acts or the 1847 Act, ABP would need to rely on Part 11 of the GPDO which requires them to seek the prior approval of Newport City Council for detailed plans and specifications. The appropriate Environmental Impact Assessments would need to accompany any such submission. The grounds on which Newport City Council, as local planning authority, could object to the proposed development within the docks is restricted because the works would be in accordance with policy. Policy EM2 of the Newport LDP protects the whole of Newport Docks, including the land to be used for the relocation of ABP and its tenants. The policy states that the Council will support such development where it can be demonstrated that it is complementary to, and does not hinder the operation of, the Port. In view of the fact that these works are intended explicitly to ensure that ABP, its tenants and Newport Docks can continue to operate efficiently, the ABP and tenant relocation plans would in principle accord with LDP policy EMT2.

4.106 An assessment of flood risk would be prepared to accompany the application for prior approval. This would describe the risk and the

proposed mitigation measures to address it in accordance with relevant legislation and guidance. Bearing in mind that policy EM2 of the Newport LDP protects the land involved for employment development, that ABP's future Master plan proposes this land for development and taking into account the nature of the existing surrounding development, it is anticipated that the land required for the ABP and tenant relocation proposals could be developed in a manner which would satisfy the objectives of TAN15 (CD17.2.2).

- 4.107 The applications for Secretary of State's consent and the prior approval application under Part 11 of the GPDO would be for ABP to make, and WG is committed to working collaboratively with them to progress the necessary submission. The proposed works are intended to address the impact on Newport Docks and ensure that they can continue to operate in an efficient and economical manner. Since the policy of both the UK and WG is to encourage sustainable port development and the expansion of port facilities, the proposed works raise no apparent policy conflict. There is, therefore, no reason to conclude that the necessary consents would not be granted.
- 4.108 Various marine licences would be required under the provisions of *Section 65 of the Marine and Coastal Access Act 2009* in respect of the works and these would be sought from NRW. An Environmental Statement would be required to be submitted in support of the marine licence application as set out in the *Marine Works (EIA) Regulations 2007*
- 4.109 For the extensive accommodation works within Newport Docks, details of which are set out in ID/172, it is intended to rely on powers afforded to ABP (which would need to be exercised by ABP) under Section 24 of the Alexandra (Newport) Docks Act 1865 and Section 5 of the Alexandra (Newport and South Wales) Docks. The substantial accommodation works proposed for Newport Docks would require planning permission from Newport City Council to be secured and approval under the Railways Act 1882 and Section 5 of the Alexandra (Newport and South Wales) Docks and Railways Act 1904, along with rights in part 11 of the Town & Country Planning (General Permitted Development) Order 1995 for most of the works. The Secretary of State's consent may be required for the exercise of some of ABP's Private Act powers, but those functions of the Secretary of State would devolve to Welsh Ministers pursuant to the Wales Act 2017.
- 4.110 In conjunction with consent under the various Private Acts ABP would rely chiefly on Part 11 of the GPDO which requires them to seek the prior approval of Newport City Council for detailed plans and specifications. The Development Order states that prior approval cannot be refused other than on grounds that the development ought to be carried out elsewhere on the land or that the design and external appearance of the buildings would injure the amenity of the neighbourhood and is reasonably capable of modification to avoid that injury. The planning officers of the City Council have confirmed that the proposals for development of new and refurbished quay space, the provision of a swing bridge and the relocation of buildings constitute development requiring an environmental impact

assessment (EIA). The requirement for an EIA under the Marine Works (EIA) Regulations 2007, where consents are sought under the various Private Acts or the Docks and Piers Clauses Act 1847, would ensure that the required environmental information would be available to accompany any application for prior approval.

- 4.111 The works would be in accordance with policy EM2 of the Newport LDP, a policy which states that the Council will support such development where it can be demonstrated that it is complementary to and does not hinder the operational use of the Port. In view of the fact that the works are intended explicitly to ensure that ABP, its tenants and Newport docks can continue to operate efficiently, the plans, in principle, would accord with LDP policy EN2.
- 4.112 An assessment of flood risk would be prepared to accompany the application for prior approval and it is anticipated that the land could be developed in a manner that would satisfy the objectives of TAN15.
- 4.113 WG would continue to work collaboratively with ABP and there is no reason to suppose that any impediment to the scheme proceeding would arise.
- 4.114 Various Marine Licences would be required under the provisions of Section 65 of the Marine and Coastal Access Act 2009, and would be sought from NRW. An ES would be required in support of the Marine Licence application as set out in the Marine Works (Environmental Impact Assessment) Regulations 2007. ABP would require the opinion of NRW and paragraph 76 of the 2017 Conservation of Habitats and Species Regulations would need to be addressed.
- 4.115 In developing the proposals on Newport Docks WG has acted in accordance with the sustainable development principle of the 2015 Act by thinking long-term, working in a collaborative way and taking an integrated approach to the development of transport networks. The proposals to address the impact that the scheme would have on Newport Docks would encourage the sustainable movement of freight by sea and would contribute to several of the national well-being objectives, namely objectives 1-3, 11 and 12. In turn, this would contribute to the *Prosperous and Globally Responsible* well-being goals set out in the 2015 Act.

Railway bridges

- 4.116 The proposed motorway would cross railways at three locations where new bridges would be provided, having regard on two of them to the requirements for the proposed electrification of the South Wales mainline and on the third Network Rail's clearance specification for the East Usk railway (CD6.2.24 - CD6.2.26).

Non-motorised Users (NMU)

- 4.117 The scheme would create a number of new rights of way and divert many others, including the Wales Coastal Path and the National Cycle Network, to ensure connectivity during construction and thereafter. Full details are

set out at Table 7 of WAG1.10.1. The scheme-long proposals were subjected to widespread consultation and collaboration with local authorities, stakeholders, land-use, community and recreation bodies, whose views were taken into account, and NMU audit reports were undertaken as the proposal developed (CD2.5.4, WG1.10.1-revised, section 3).

Crossing over the Wentlooge and Caldicot Levels and the network of reens

- 4.118 The motorway would cross a number of existing reens and field ditches. Some would be removed, but generally, where reens would be encountered transverse to the line of the motorway, the watercourse would be culverted and specific engineering techniques have been developed to minimise disturbance to the reen structure, its banks and vegetation. That precautionary treatment respects the SSSI status of the network. Reen water either side of the road corridor would be held back during the construction of the culverts, pending later re-establishment of connectivity of the network. There would be no interference with reens lying outside the trace of the proposed road. The engineering technique for dealing with the crossing of the reens, managing surface water, ongoing maintenance and minimising impact has been specified and illustrated to the approval of Natural Resources Wales (NRW). The works would be supervised by a dedicated and experienced Clerk of Works and subjected to a specific on-site check system (ID/010, ID/039, ID039a, ID39 and PIQ95).

Highway Engineering Details

- 4.119 The whole scheme has been designed in accordance with the Design Manual for Roads and Bridges (DMRB) to current highway standards, with appropriate relaxations and departures from standards, to enable the route to fit within the existing environment, topography, local road network and other constraints whilst having the appropriate carrying capacity. The proposed motorway would have three lanes and a hard shoulder in either direction and horizontal and vertical curvature appropriate for a 120 kph design speed. Some weaving lengths at interchanges and junctions would have a design speed of 85kph but would have full standard stopping sight distance in accordance with Departmental Standard TD9/93. The motorway and road links to it would be subject to a mandatory 70 mph speed limit (CD6.1.8, CD6.2.22, CD6.2.23, PIQ19, PIQ153).
- 4.120 The link roads from the grade-separated junctions at Glan Llyn and the Docks would both be dual 2-lane all-purpose trunk roads in order to adequately carry the predicted traffic demand and/or provide a continuity of dual-carriageway standard (WG1.5.6, PIQ25).
- 4.121 Carriageway drainage would be provided through a combination of pipes and shallow gradient, lined, grass and concrete channels discharging into a series of 12 water treatment lagoons and reedbeds. These would attenuate and clean road run-off prior to discharging it into local watercourses. The

lagoons would regulate the discharge flow to that of "greenfield" run-off rates. Water entering the lagoons would be filtered through a mesh of stone gabions in a way that would separate pollutants from water. The lagoons would be hydraulically designed to provide significant freeboard storage to ensure no overtopping during storms (WG1.17.1, WG1.20.1, CD2.1.5, CD2.4.4, ID52, PIQ019).

- 4.122 Throughout the Levels, the motorway embankment would drain to a toe ditch located inside the motorway timber stock-proof fence. It is anticipated that fencing will also be provided to each water treatment area to prevent or restrict access to the ponds and lagoons (PIQ033).
- 4.123 NRW have approved the drainage strategy. It would manage the re-en and culvert networks after construction, subject to a commuted sum being agreed (ID/085).
- 4.124 About 1,850m of 2m high noise barrier would be erected near Magor, and, in two lengths, over 2,190 metres at Duffryn. Solid central reservation barriers and noise absorbing surfacing would further attenuate noise (WG1.6.1).
- 4.125 Road lighting would be confined to the Glan Llyn and Docks Way junctions (PIQ08, PIQ25, PIQ53).
- 4.126 New or diverted lengths of highway for vehicles and non-motorised users, public rights of way and private means of access (PMA) would be provided to replace and enhance those affected by the scheme. They would require new or extended bridges. Five new private/public brideways and one new public footpath would be created. The scheme would maintain the connectivity for most of the side roads. The exceptions would be at Pound Hill Lane, Castleton and Green Lane near Duffryn, both of which would be stopped up with nearby access provided (WG1.5.1).

Proposed alterations to the existing motorway

- 4.127 The existing M4 motorway from Magor to Castleton would lose its special road (motorway) classification and status but would become a National Government controlled all-purpose trunk road, as would the A48M between Castleton and St Mellons, with national speed limits applied. Traffic control measures, such as changes to traffic signs and road markings would be installed on the existing motorways to reflect these changes. Access to the existing M4 (in both directions) would be (re)established at J25. From J23A to J24 the motorway would be constrained to 2 lanes in both directions, as would the westbound carriageway between J24 and J25 and the length through J28. East facing slip roads from J25A would be closed and connected to those adjacent at J25. The existing variable speed limit would continue to operate along the existing M4 between J24 and J28, but with a maximum speed limit of 60 miles an hour imposed at the Brynglas Tunnels. (CD6.2.6, CD6.2.4, PIQ99).

Road safety audit

4.128 A Road Safety Audit Stage 1 was carried out for the design of the scheme. Where criticisms were made appropriate responses amended the design or explained why the original proposals should be adhered to (CD6.2.8, CD6.2.14, PIQ12).

The evidence of Mr Stephen Bussell

The cost and economic case for the scheme

4.129 The scheme cost, including construction, land, risk, works to Newport Docks, compensation and preparation costs would be in the order of £1,321m at Q4 2015 prices, exclusive of VAT. The cost includes a figure of £17.5 million for the bridge protection works in the docks and £167.5 million (which includes £31.2 million for risk) for the accommodation works in the docks. It would be funded from WG's capital transport budget, development budget and UK Government borrowing. The four main elements of the scheme cost are:

- the cost of land and compensation
- the design, preparation and construction costs
- the superimposed adjustment for identifiable risk, and
- the superimposed adjustment for optimisation bias* (WG1.3.1, WG1.3.6).

**This reflects the historic systematic bias for estimating scheme costs and delivery times too low and too short respectively at various stages of preparation and thus results in an overall increase in the ultimate cost of the scheme.*

4.130 The construction contract is incentive based with the private sector contractor carrying over £41m of risk if initial construction costs overrun. In total a figure of about £120 million has been included for risk and optimism bias. A separate allowance of about £16 million has been included in the overall estimate to allow for the reclassification and reconfiguration of the Caerleon Road at J25 of the existing M4. As is traditional practice for capital Government projects, no allowance for VAT has been included in the estimate, since, in overall government expenditure terms, VAT would be cost neutral (WG1.3.1 Table1, WG1.3.6, WG1.6.1, PIQ055).

4.131 The Economic Assessment Report, which takes account of the traffic effects which would arise from the removal of tolls from the Severn Crossings and the £1,321m costs, including changes to Newport Docks, sets out the beneficial return of the scheme, when considered against the capital and maintenance costs (Benefits to Cost Ratio - BCR). Based on these, the BCR of constructing the scheme, with the eastbound off-slip road also constructed, would be in the order of 1.7:1 if a central traffic growth rate was assumed. Following the publication of the revised WebTAG Databook by the Department of Transport an indicative analysis using the updated values of travel time savings show that the initial BCR

would reduce by 0.14. That indicates that the scheme would still provide a healthy rate of return for the investment of public funds - in other words for every £1 invested it would pay back about £1.56 for the nation (CD2.3.7, CD2.4.11, CD2.5.3, WG1.3.1, WG1.3.6).

4.132 The main construction contract is established on a "pain-gain" basis which means that once a target cost is established (including risk) any excess costs above the target get shared. The larger the over-run of costs above the target the greater the burden falling on the contractor. Correspondingly for an underspend, the greater the underspend the greater the dividend accruing to WG. This arrangement incentivises efficiency whilst minimising risk to the taxpayer and, as the BCR has adopted the target cost, the probability of fluctuations of out-turn cost occurring one way or the other would:

- theoretically potentially underplay the possible value of the BCR, and
- reduce potential risk to the taxpayer (PIQ055, ID184).

4.133 The existing M4 north of Newport is subject to incident related disruption, on average every 4.5 days, which locks-up traffic, with even minor incidents causing significant delay to all traffic, including delays to buses and emergency service vehicles. In the event of incidents occurring no commodious alternative routes exist. Whilst the economic disadvantage of such occurrences is significant, no account of the economic harm which arises from them has been assessed or evaluated. In contract, the scheme would provide an alternative route, free of urban congestion. It would significantly reduce the probability of incidents, thereby contributing to the environmental and social well-being of the people of Newport and the surrounding areas. In the event of an incident occurring, a suitable diversion route would be available. It would therefore reap "unaccounted for" economic benefits over and above the BCR of 1.56 (ID136, ID/136a,).

The perception of congestion and wider economic benefits of the scheme

4.134 The scheme would improve the current damaging perception of Wales as a place to visit, attend events and do business, by reducing journey times, substantially improving reliability of travel and giving better access to employment opportunities and markets. Research has shown that transport improvements can lead to a range of indirect economic benefits that occur as a consequence of the ways in which transport effects economic activity*. The proximity of the scheme to the Docks and other large industrial and commercial areas in south Newport would enable it to directly contribute to the economic well-being of the local area and of local people (WG1.3.1, WG1.3.6, CD2.3.7, CD2.3.8, CD2.4.11, S214, PIQ29).

4.135 These additional benefits would arise from:

- the agglomeration effects that would arise from firms deriving productivity benefits from being located effectively closer to other firms and having access to a large labour force (WG1.3.1, ID/012)

- an improvement in accessibility which would lead to an increase in the number of businesses and employment up to 30 km from the M4 (ID/012)
- the transport improvements which would result in lower transport costs for firms which would enable them to reduce prices and increase output of goods and services resulting in a welfare benefit to consumers, and
- labour market impacts which would arise from the reduction of the “barrier” induced by transport costs restricting entry into the labour market (WG1.3.1, ID/024*).

**Transport Investment and Economic Performance: Implications for Project Appraisal-known as The Venables’ Report.*

- 4.136 When these wider economic benefits are considered, the benefits outweigh the costs by about 2.27:1. Should a low growth rate be experienced the corresponding figures would reduce to about 1.30 but would increase to about 3.10 with high growth. Following the publication of the revised WebTAG Databook by the Department of Transport an indicative analysis using updated values for travel time savings show that this adjusted BCR would reduce marginally. This means that the scheme would represent good value for money with its benefits outweigh its cost by a ratio exceeding 2 to 1 when wider economic benefits are included (WG1.3.1 Table 4, WG1.3.6 Table 3, CD2.5.3, ID198).
- 4.137 If the economic harm of the congestion caused by the proven abnormally high and continual rate of incidents is assessed the indications are that the economic worth of the scheme, would rise to a basic BCR of 2.63:1. In reality, the scheme would therefore clearly exceed the threshold of 2 to 1 which defines good value for money.
- 4.138 With the works proposed for Newport Docks it would be possible to accommodate all of the displaced of vessels from the North Dock into the South Dock and therefore the scheme would present no impediment to shipping. In respect of landside operations, through engagement with ABP, WG has developed plans for the relocation of a range of port assets and poor tenants to reduce or offset adverse impacts of the construction and operation of the scheme. There would be short-term disruption but the relocation proposals would ensure that ABP and existing tenants could continue to operate and that the docks could function properly. A commercial analysis suggests that in the long-run there would be no detrimental impact from the scheme on the commercial performance of ABP at Newport but the improved access would bring an overall net financial benefit to the Docks.

The evidence of Mr Barry Woodman and of Mr Andrew Clifton

The construction of the motorway and land contamination

- 4.139 The awarded construction contract is that of an “early contractor

involvement (ECI)" process, to ensure that buildability and construction issues were appraised early. That would enable optimisation of practical design, minimisation of costs and reduction of environmental and engineering risks. The construction, including the early works within Newport Docks, would take about 4 years 10 months to complete (if a start is made in January 2019), with the early accommodation works within the docks being undertaken early on to clear the site for bridge erection. Special attention has been paid to the need to mitigate the impact that the scheme would have on the SSSIs across the Gwent Levels and in the Special Areas of Conservation (SAC). Temporary land parcels required for construction, access, storage, excavation and stockpiling of materials have been identified at optimal locations and all were included within the draft CPOs. The borrow pits would be restored to their current use after completion of construction (WG1.6.1, CD2.3.2, PIQ69, PIQ75).

4.140 Project management, quality, health, safety, welfare, traffic and environmental management systems have been developed to represent best industry practice and to ensure that the commitments made in the Environmental Statement (ES) would be delivered (Annex C of this report). These would ensure:

- the minimisation of land-take generally and across the Gwent Levels SSSI's in particular
- the timely implementation of environmental mitigation measures,
- the minimisation of disruption to the public and everyday traffic, and
- the minimisation of construction noise, dust and pollution from site run-off (CD2.3.2, CD6.1.13-6.1.15).

4.141 A Construction Environmental Management Plan (CEMP) and a Register of Commitments would be carefully produced in consultation and adhered to. A succession of consents would be required to enable the construction to proceed as planned and the requirements of Section 28G of the Wildlife and Countryside Act 1981 would continue to be an integral part of the construction process. This has been considered in substantial collaboration with others, including those responsible for Newport Docks, during the development of the scheme and would continue throughout the construction phase (WG1.6.1, WG1.18.1, CD3.1.7, Annex C of this report).

4.142 In accordance with Departmental Advice Note HA 73/95, extensive ground investigation identified and assessed 27 potentially contaminated sites from which remedial measures to the satisfaction of Newport City Council and NRW were devised, all in accordance with the Environmental Protection Act 1990, the Environment Act 1995, the Contaminated Land (Wales) Regulations 2006 and Planning Policy Wales (Edition 9).

4.143 By removing those deposits of contaminated slag from the northern periphery of the Gwent Levels, treating the material and reusing it in embankments, the scheme would benefit people and the environment, as confirmed by NRW, and thereby demonstrative environmental

sustainability.(WG1.6.1, WG1.11.2, PIQ033, PIQ036, PIQ56).

4.144 The innovative approach would:

- minimise off-site disposal of waste material to a negligible volume;
- maximise the use of site-won material;
- reconstruct the Ifton quarry access road to minimise the volume of material being imported on public highways, increasing the efficiency of haulage and reducing construction carbon, public inconvenience and costs;
- deploy side-step piling to avoid an impact with the PCB cell;
- create a method of working to facilitate the haulage of contaminated material clear of the public highway, thereby protecting it from destruction (PIQ 56, PIQ 85).

4.145 Borrow pits and storage areas would be established at the extreme eastern and western ends of the scheme. About 600,000m³ of steelworks silt and slag lagoon materials would be remediated for use by cement stabilisation, after having been subjected to extensive testing and monitoring (WG1.6.1, PIQ033).

4.146 Innovative piling for structures, including culverts and underpinning the relatively low embankment across the Gwent Levels, would be required because of the weak subsoil. Fin drains would need to be installed to aid the settlement in the natural soil beneath the surcharged embankments, which would be reduced in height once settlement had taken place and the excess material would be returned to the borrow pits (WG1.6.1).

4.147 The impact on the River Usk SAC and Lower Usk SSSI would be minimised by constructing the River Usk viaduct outside the wetted channel of the river, in the vicinity of which riverside access would be maintained for otters and otter holts would be provided (WG1.6.1).

4.148 Temporary road closures would be required at the following locations:

- St Brides underpass for 39 months
- Knollbury Lane bridge for 12 months
- Rockfield Lane for 12 months, and
- Corporation Road using 7 overnight closures.

4.149 Alternative routes would be continuously monitored. Knollbury Lane and Rockfield Lane would not be closed at the same time and, where agreed with the local highway authority, small improvements would be made to the alternative routes for displaced traffic (WG1.6.1). Normal construction working hours would be 07.00 to 19.00 from Mondays to Fridays with a

finish about 17.00 on Saturdays. Liaison would be maintained with the respective officers of the local authorities for working outside these general hours. A permanent Public Liaison officer would be employed in order to reduce the impact of construction on businesses and residents and regular liaison meetings with affected parties would be continued throughout the construction phase, with the communications strategy developed and implemented (WG1.6.1).

- 4.150 The substantive works necessary for the bridge protection measures in the South Dock around the Junction Cut, along with the 150 m of new quay on the north side of the South Dock and the new swing bridge across the Junction Cut would require completion prior to bridge deck works advancing beyond the west abutment of the River Usk Crossing Western viaduct. The works within Newport Docks would need to be phased. Noise and vibration associated with the operations would be managed using low noise equipment and current best piling practice with the monitoring and mitigation measures deployed. It is anticipated that the backfilling for the bridge protection measures would be delivered to the site in ships, with a probability that about 28 vessel-visits would be required to complete the works. Throughout this phase of the scheme liaison would be engaged with ABP, especially with respect to vessel movements. It is recognised that the Junction Cut is essential to the operation of the North Dock and all works associated with it would need careful planning and close liaison. It is anticipated that the closure periods for the Junction Cut would be one period of six days and another of eight days.

The evidence of Mrs Julia Tindale

The impact of land acquisition and demolition

Overall Land-take

- 4.151 The scheme would require about 413 hectares (ha) of residential, agricultural, allotment, industrial, common-land and woodland, including that needed for environmental mitigation and for temporary construction purposes. It would require the demolition of 10 residential properties mostly at Coedkernew, a listed building at Magor and commercial buildings within the Stevenson Industrial Estate and the confines of the Docks. Significant relocation of premises, together with replacement building, would be needed within the Docks (WG1.10.1, WG1.1.8, PIQ028, PIQ059, PIQ148).

Common Land

- 4.152 About 1,342 m² (0.32ac) of common land located within, or alongside, the wetted channel of the River Ebbw, and devoid of any named commoners in the Register of Common Land, would be purchased for the scheme. The Register refers to land owned by Residual Lands Ltd and the Crown Estate. The land would be required to establish the eastern bridge pier of the River Ebbw Crossing. A further block of about 2,603 m² of land, in, or adjacent to, the Rivers Ebbw and Usk, would be subject to an easement for

construction and maintenance of the River Usk Bridge. The scheme would also require rights over a further 3,110 m² (0.74ac) of land (WG1.10.1, PIQ028).

4.153 The scheme would affect a total of about 7,055 m² (1.68ac) of common land, through permanent acquisition, or the acquisition of rights, and Ministers would need to certify that the replacement land accords with Statute (a Section 19 Certificate). An area of 6,890 m² (1.64ac) of land has been identified in exchange for the Common Land permanently affected. This is generally located in areas adjoining the River Ebbw and contiguous with the existing area of common land to the south. The exchange land would be significantly greater in area than that purchased outright for the scheme, and of similar quality. Overall, the exchange land would be equally advantageous to the area of common land affected by the scheme, both in area, location and type (WG1.101), CD3.1.6, PIQ028). The Section 19 certificate test would therefore be met.

Statutory Allotments

4.154 The scheme would sever and remove 10 allotment plots, amounting to about 2,288 m² (0.6ac) from the Monmouthshire statutory allotments at Green Moor Lane, Magor. These are owned and managed by Magor with Undy Community Council. As the land-take exceeds 250 yd² replacement land would be required in accordance with Section 19 of the Acquisition of Land Act 1981(CD3.1.6).

4.155 In the order of 5,483 m² (1.4ac) of pastureland, all in a single field (CPO land reference plot 15/17), has been identified as nearby exchange land with access to it from Green Moor Lane. The replacement land is of similar quality to that which would be removed from the existing allotments. Its deployment would enable allotment plots of a consistent size, and to recognise standards, to be re-provided, together with associated car parking and access tracks, whilst allowing an appropriate margin from the established hedge to the east and west. Overall, the replacement site would be equally advantageous to those with an interest in the current allotments (WG1.101, PIQ028).

Agricultural land

4.156 Agricultural land in the order of 228 ha (561ac) would be affected by the scheme, including about 15 ha (37ac) which would be required on a temporary basis. The approximate distribution of land acquisition by grade would be:

- grade 2 - 22.9 ha (54ac)
- grade 3a - 46.8 (115ac)
- grade 3b - 55.2 ha (135ac), and
- grade 4 - 102.6 ha (252 ac).

4.157 PPW requires the best and most versatile land to be preserved (grades 1, 2 and 3a). The scheme has been designed to minimise the effect on these grades of land (WG1.10.1 revised, CD 5.1.12).

4.158 Forty farms or agricultural units would be affected by land loss to some degree, with 11 of the farms significantly affected (WG1.10.1 revised, CD16.1.1).

The Environmental Effects of the scheme

The evidence of Dr Michael Bull

The positive effects of the scheme on local air quality

4.159 With the scheme in place, pollution concentrations would reduce significantly near the existing M4 corridor and in the urban centre of Newport but increase at locations near the proposed motorway. The critical loads of nitrogen deposition would not be exceeded at any receptor. For the Langstone-Llanmartin SSSI there would be a major beneficial impact resulting from the removal of traffic on the existing M4 and onto the scheme. The scheme would meet the objective of improving air quality at properties close to the existing M4. The overall improvement to the environment would be that of a major beneficial change (WG 1.12.1, WG 1.12.4, WG1.12.5).

4.160 The highest increase in annual mean nitrogen dioxide concentrations within 200 m of the proposed motorway would be at Fair Orchard Farm, where there would be a minor adverse impact. In general, the air quality at about 29,000 properties would benefit from the scheme, compared to a deterioration in quality at about 1,600 properties. The overall population exposure to pollutants would significantly reduce in the future because the scheme would reduce traffic in the more populated areas of Newport where the air quality is poorer. Air quality in the defined Newport Air Quality Management Areas (AQMA) would improve, with a minor to major beneficial impact arising. The scheme would bring significant benefits across the majority of areas where air quality is affected by the existing M4 traffic. In so doing it would therefore contribute to WG's 2017 well-being objective 5 and 6: "*promote good health and well-being for everyone and build healthier communities and better environments*" (WG 1.12.1, WG1.12.4).

The evidence of Mr Tim Chapman

The largely neutral effects of the scheme in producing carbon

4.161 Following construction, operational carbon, from vehicles using roads, would reduce because the scheme would:

- be approximately 2.8 km shorter than the existing M4 route
- prevent excessive tail-gate pollution which currently arises from slow-moving vehicles and frequent traffic queues and which would

worsen as a result of the removal of the current Severn Crossings tolls from 2019, and

- draw traffic away from less suitable or less efficient roads onto a highway network that would facilitate optimum engine performance.

4.162 Modelling has demonstrated, conservatively, that the scheme would save about 4,324 tonnes of user carbon emitted on the Welsh road network each year, with increasing savings into the future (WG1.13.2, WG1.13.5, WG1.13.6, ID/072).

4.163 Detailed bottom-up calculations indicate that the actual construction of the scheme would cause the generation of capital carbon of about 522,516 tonnes but, taking a conservative approach, that would be repaid after about 50 years of operation, thereby achieving whole-life carbon neutrality in 2072 or thereabout. In other words, the project could be considered to be net carbon-neutral because the capital carbon expended during its construction would be equal to the cumulative operational and user carbon saving as a result of the completion of the efficient motorway (WG1.13.2, PIQ/037).

4.164 If there is an acceleration in the uptake of electric cars that would put back the date of achieving carbon neutrality. That would be good for climate change because road transport generally would pollute less even though the electricity grid may produce more carbon in order to power electric cars.

The evidence of Mr Philip Evans

The overall positive effects of the scheme on noise and vibration

Construction noise and vibration

4.165 During construction, continuous monitoring of noise and vibration would be undertaken in accordance with the Construction Environmental Management Plan (CEMP) and agreements with local authorities, and best practice methods would be adopted. That would result in 166 residential properties experiencing a moderate or major adverse impact during construction with a further 107 experiencing a minor impact (WG1.6.1, WG1.14.2, PIQ20).

Road traffic noise

4.166 PPW draws attention to noise in the following terms:

"Noise can affect people's health and well-being and have a direct impact on wildlife and local ecology. Noise levels provide an indicator of local environmental quality. The objective of a policy for noise is to minimise emissions and reduce ambient noise levels to an acceptable standard" (CD5.1.3).

4.167 Calculations, which have had regard to the extra traffic which would be

drawn into the M4 corridor because of the removal of the Severn Crossing tolls, demonstrate that in 2022, of the 20,708 receptors analysed, 2,226 would experience a significant adverse effect from road traffic noise from the scheme, including areas across the Gwent Levels. However 12,479 receptors would receive a significant benefit. Overall, approximately 16,000 residential properties would experience a lowering of road traffic noise and thereby a significant increase in the well-being of the thousands of people would be realised, whilst about 4,000 residential properties would experience an increase in noise (WG 1.14.2, WG1.14.3, PIQ020).

- 4.168 For the design year of 2037 (2039), about 14,248 residential properties would be subjected to less road traffic noise, while about 5,564 would receive more noise. The scheme would therefore bring significant benefits in terms of net noise reduction to properties and people and thereby contribute to WG's 2017 well-being objectives 5 and 6: *"promote good health and well-being for everyone and build healthier communities and better environments"*. (WG1.14.3, WG1.14.5, WG1.14.6).

The evidence of Mr Richard Graham

The neutral effect of the scheme on water quality across the Gwent Levels

- 4.169 The EU Water Framework Directive 2000 defines the standards and classification to be met in the discharge of highway run-off to watercourses. The Groundwater Regulations 1998 provides the legislation to protect groundwater quality, prevent entry of certain hazardous polluting substances and limit the entry of certain non-hazardous substances. The receiving watercourses for the scheme would be the Rivers Ebbw and Usk and the complex artificial network of managed reens and ditches across the Gwent Levels (WG1.15.1, ID052, ID053, ID058 PIQ102).
- 4.170 To establish baseline conditions within the reen network, 72 surface water monitoring locations were sampled and monitored in accordance with the Directive and stipulations set by NRW. Water quality data was obtained from 98 monitoring locations installed along the proposed road corridor. The monitoring indicated that pollutants likely to be released by road surface run-off were currently low or very low and well within safe levels in the watercourses of the Gwent Levels. There are however already undesirable concentrations of nutrients and other signs of nutrient pressures within the reen network, but these would not be affected by any future road run-off (ID053, PIQ036).
- 4.171 The sensitive Gwent Levels SSSI's are designated primarily because of the reen and ditch habitat which supports the aquatic vegetation, insect and invertebrate species. In recognition of the sensitivities, a drainage network, which includes 12 bespoke water treatment areas, would be established to accommodate a one-year return period storm within the pipework and ensure that a five-year return period would not result in surface flooding. It has been designed to contain flows up to a 100-year return period storm, including a 30% increase in precipitation to account

for climate change. This would ensure that the drainage system would be capable of conveying all the run-off flow to the water treatment areas for attenuation and treatment. Should storm periods greater than 1 in 100 be experienced, the incorporated grass-lined channels would carry the surface water flood-flows, thereby minimising potential pollution, having regard to the inevitable dilution from an intense storm (WG1.15.1, CD17.2.14, ID053, PIQ036).

- 4.172 To comply with the strict drainage requirements of NRW, the scheme would incorporate impermeable low-gradient lined grass channels which would be trapezoidal in shape and typically 2.1m to 3.0m wide. These would provide a high degree of attenuation and arrest spillages of pollution before they reach the reens network. Pollution control lagoons would then intercept the "first-flush" volume and be capable of capturing gross contamination. Baffles would be installed to prevent the onward flow of any floating hydrocarbons and the system could be isolated by hydraulically controlled penstock valves. Maintenance guidance for the grass lined channels and lagoons would be developed with NRW and imposed upon the maintenance agent for the motorway (ID053).
- 4.173 The main attenuation lagoons have permanent "wet volume" and sufficient surcharge storage capacity to attenuate flows from a 100-year storm. Outfalls from these attenuation lagoons would be restricted to the equivalent green-field run-off rates. Reedbeds would be provided to filter water and remove pollutants prior to discharge to reens. The western end of the scheme, which currently drains the existing M4 unimpeded to the Gwent Levels, would be incorporated into the new attenuation network (WG1.15.1, PIQ077).
- 4.174 Carriageway run-off from the River Usk viaduct would drain directly into both the Rivers Ebbw and Usk, without filtration or attenuation, because of the twice-daily diluting huge tidal flush. That is accepted by NRW (ID053).
- 4.175 Innovative construction methodologies have been designed and would be implemented for the protection of surface water quality, with regular water monitoring during the construction period. Temporary storage or, as a worst-case, a "tanker-away" procedure to remove captured water and avoid pollution would be an appropriate and an accepted contingency during construction. That has been agreed with NRW (ID053).
- 4.176 A surface water monitoring protocol has been developed for the post construction period and would be undertaken by NRW. This would monitor the performance of the water treatment areas and the effect on the water quality and ecology of the Gwent Levels. That protocol includes a proactive mechanism to determine control levels from which maintenance work, or remedial action, would be undertaken well before the desired water quality standard would be breached (ID053, ID054, PIQ036).
- 4.177 An innovative approach to the infilling of the existing and construction of new reens has been developed for implementation under dedicated and close supervision on site. The methodology is set out in detail in the

dossier and drawings at ID 010.

- 4.178 The design of the proposed embankments has taken account of the potential contamination leaching from contaminated materials including treated steelworks slag waste. A framework for the management, handling and treatment necessary to enable full recovery of the waste material would be regulated as agreed with NRW. A land contamination management strategy has been agreed with NRW to ensure that the Levels, ditches and reens are not contaminated both during construction or thereafter (PIQ033).
- 4.179 The proposed motorway would be treated with rock salt as part of its normal winter maintenance. During the drier months from 1 March to 30 September when ice on roads is still a problem an alternative non-saline treatment would be used to offset the relative lack of dilution which would occur during the wetter winter months (WG1.15.1, ID053).

The evidence of Dr Paul Canning and Mr John Davies

The slight beneficial effect of the scheme on flooding

Tidal Flooding

- 4.180 The scheme would be protected from the twice-daily high tides and tidal flooding by the Severn Estuary sea wall and flood-banks either side of the Rivers Usk and Ebbw. Studies have shown that the area is already potentially liable to flooding from a combination of adverse circumstances and increasing sea levels. This is recognised by WG's "Hold the Line" policy for the area, which in future could incorporate enhancing the River Usk flood defences along Stephenson Street, Newport, the accepted most flood prone area. WG's commitment to the policy was confirmed in the draft 2018 – 19 Budget announced in October 2017 which allocated £7.5 million for flood protection measures, including that work at Newport and some £140 million in total for flood and coastal erosion risk management. The £7.5 million included funding for detailed design and construction of the Stephenson Street scheme, and should the scheme proceed WG would engage with NRW and other stakeholders to coordinate the Stephenson Street program with the M4 project programme, thereby enabling NRW to carry out the work in three phases with the first two being constructed in 2019. Further design work is required for phase 3. Therefore there is every likelihood that this crucial flood risk management scheme would be completed by 2020 and thereby complying with WG's 2017 well-being objective 3: "*drive sustainable growth and combat climate change*" (WG1.16.1, WG1.23.7, CD17.2.14, CD17.2.16, ID/048, PIQ27, PIQ 070).
- 4.181 The proposed road embankment across the Gwent Levels would have the potential to hold back tidal flood water originating from either the south, due to overtopping or a breach of existing defences. Flooding from a breach of the defences near Stephenson Street would affect land both north and south of the scheme and therefore it would have a less distinctive positive influence on reducing flood risk in that eventuality. In

this regard, it is recognised that construction of the scheme in an area that is already recognised as potential floodplain, would be contrary to the principles of TAN15, although the Advisory Note allows for development of essential highway infrastructure to proceed in such a zone (WG1.16.1, CD17.2.2, CD17.2.16, PIQ/027, ID/060, ID/048-section 5 thereof, ID/156).

4.182 WG's first Marine Plan was published in draft in December 2017 with the objective of guiding sustainable development of the marine area of Wales, including the Severn Estuary. It provides the context for decision-making on the coast by setting out preferred policies for how the coast should be managed and highlights the Hold the Line policy in respect of the Wentlooge and Caldicot Levels. It states that Shoreline Management Plans should be the drivers for decisions on coastal management over the long-term, which strengthens the case for the scheme proceeding in line with the development of the Hold the Line policy (WG1.23.1, ID156).

4.183 In overall terms, the scheme would not have any severe detrimental flooding effects within the area. Potentially, it could be of benefit, although it is recognised that it has been criticised by NRW as being non-compliant with TAN15. The model indicates that, with identified flood prevention works being constructed by 2025, the scheme would not increase the numbers of properties that would flood without the scheme in place. As recognised in the Statement of Common Ground with NRW, following completion of the flood defence schemes and the removal of short-term conflict with policy requirements, the scheme would comply with the requirements of PPW and TAN15 (WG1.16.1, CD17.2.2, CD17.2.14, PIQ/026, ID/060-section 5 thereof).

The evidence of Mr Michael Vaughan

Non-Tidal Fluvial Flooding

4.184 The scheme would pass across the Gwent Levels, on a raised embankment through a low-lying area which has a history of flooding and is formally identified as a floodplain which discharges to a huge tidal Severn estuary through a series of tide gates and sluices. The local drainage network, which becomes tide-locked twice-daily, is required to adequately store water during those periods and ensure hydraulic conductivity throughout the whole area. That would be provided beneath the footprint of the scheme by the incorporation of a series of culverts connecting to their parent reens either side of the road embankment, thereby ensuring that the embankment would not hold back surface water and cause severe localised flooding as a consequence. The whole of the Gwent Levels has been hydraulically modelled in accordance with the requirements of NRW, with allowances made for climate change and an increase in sea levels up to the year 2121 (WG1.17.1, WG 1.17.2, CD17.2.20-CD17.2 22, PIQ/023, PIQ/094).

4.185 The scheme, in removing about 2% of the reens and ditches across the Levels would:

- infill 2,755m of existing reens
- create 2,826m of new, larger, more beneficially shaped reens
- infill 9,373m of existing field ditches, and
- create 10,594m of larger ditches, thereby enhancing the existing water storage capacity across the Levels.

4.186 During extreme rainfall, the scheme would discharge less than half the peak run-off currently being supplied by the land, releasing a peak flow of only 3.5 l/s/ha to the lagoon system, based on a 100-year storm (PIQ/094).

4.187 In general, the scheme would satisfy the criteria of TAN15 because:

- it would not risk flooding to any industrial or residential property
- there would be no surface water flooding during the 1 in 100-year flood event, over the lifetime of the project, although -
 - increased water levels of up to 100mm may affect agricultural land immediately to its south
 - increases of up to 350mm were predicted north of Magor, because of the need to substantially lengthen the existing Mill Reen culvert, (based on a 1 in 1,000-year flood event)
 - agricultural land would need to be compulsory purchased near Magor to provide rights to discharge surface and flood water for a length of 600 m upstream, and
 - a new set of control sluices or tilting weirs, which would make management of the reen network by NRW easier, would be necessary at each reen crossing (WG1.17.1, D17.2.2, PIQ026).

The evidence of Mr Mick Rawlings

The adverse effects of the scheme on cultural heritage

4.188 In accordance with the DMRB, a study area of 200 metres around the scheme was established in order to determine its effect on the cultural heritage of the area. The study results were fed into the March 2016 ES for reporting in accordance with current and developing policy and guidance. An acknowledged panel of experts on the archaeology and historic landscape of the Gwent Levels advised on the effect that the scheme would have on the Gwent Levels Landscape of Outstanding Historic Interest resulting in the original conceptual design of the scheme being changed to reduce the impact on cultural heritage resources by the incorporation of low embankments, a noise reducing road surface and landscaping (CD2.3.2, WG1.9.1).

- 4.189 The locations and extents of statutory and non-statutory designated cultural heritage resources within the study area are shown on Figures 1 – 4 in Appendix A of WG1.9.3, which highlighted the significant adverse effect on these resources that would arise from cutting through the northern edge of two parts of the registered Gwent Levels Landscape of Outstanding Historic Interest, where a Moderate magnitude of impact would occur leading to a Large significant effect.
- 4.190 One Scheduled Ancient Monument (SAM), (the probable bronze age standing stone at Undy known as the Devil's Quoit), would be subjected to a Major impact, with a Large significance of effect, because of changes to its setting but the scheme has been designed to enable retention of it in situ with an improved access and noticeboard provided. There would be a temporary significant effect on another SAM, the medieval moated site to the east of Undy, from a temporary borrow pit but following reinstatement and woodland planting, the effect would be slight (WG1.9.1).
- 4.191 The listed building known as Woodland House would need to be demolished for the scheme, the magnitude of impact of which would be Major and the consequent significance of effect would be both Large and permanent. Relocating the building would reduce the effect to Slight and WG would work with Monmouthshire County Council to achieve that end (WG1.9.1).
- 4.192 There would also be long-term adverse effects of Moderate significance on:
- the Grade I listed Newport Transporter Bridge
 - the Grade II* listed Whitson Court, and
 - the Grade II listed Tatton Farm,
- all as a result of changes within their settings (WG1.9.1).
- 4.193 There would be permanent adverse effects of Moderate significance resulting from the demolition of three non-listed historic buildings within Newport Docks. The scheme would result in the removal of the remains of a Second World War barrage balloon tether site at Pye Corner, Nash, which is judged to be a high value heritage asset because of its rarity and state of preservation. The magnitude of impact would be Major and the consequent significance of effect would be Large. In consultation with Cadw, a suitable site near the proposed motorway has been identified for the re-location of the remaining elements of the heritage asset reducing the impact upon it to Moderate and the consequent significance of effect would be Moderate (WG1.9.1).
- 4.194 Construction of the scheme would result in Moderate adverse effects to the following known archaeological sites:
- a small rectangular moated platform of medieval, or possibly post-medieval, date located immediately south west of the junction of Rush Wall and North Row

- a group of late Iron Age and early Roman enclosures just to the west of Magor, and
- the shrunken medieval settlement at Llanfihangel Rogiet.

4.195 Within the Gwent Levels unknown buried archaeological remains could be present of High or even Very High value and the Impacts on such remains could be as significant as Major, leading to effects of Large or Very Large significance.

4.196 The Llanfihangel Rogiet Conservation Area¹ is centred on the surviving core of historic buildings at Llanfihangel, which includes the Grade II* listed Church of St Michael and All Angels, together with the two historic farmsteads of Old Court Farm and Green Farm, which comprise groups of Grade II listed buildings. Llanfihangel was formerly a much larger settlement centred on a substantial village green located in the vicinity of the present farmyard of Green Farm. The Conservation Area takes in all of the land formerly occupied by this now much-reduced settlement, as well as additional land that provides a 'buffer' to the current buildings. This Conservation Area is of Medium value as it contains buildings that contribute significantly to its historic character (Table 6.1 of HA 208/07-CD6.1.8, WG1.9.1).

4.197 A direct, physical, impact on the Conservation Area would arise from:

- the loss of land
- the effect on buried archaeological remains, which could be offset by archaeological investigation
- visual changes, and
- a slight increase in noise.

The ES originally assessed these impacts as Moderate, with a significant Moderate adverse effect.

4.198 In September 2016, an addition to the scheme necessitated an increase in the proposed land-take north of the B4245 of around 8.92 ha, including 5.66 ha of woodland, trees/shrubs and grass, some of which would be on embankments and a water treatment area of 0.4 ha. Offsetting that, the 3m lowering of the earlier proposed M48 roundabout would reduce the visual and noise impacts on the church and on Old Court Farm, with the overall magnitude of impact on the Conservation Area remaining as Moderate adverse, as would the significance of effect. In summary, whilst the historic core of the Conservation Area and its historic buildings would

¹Inspector's Note

There are variations in the name and so it has been decided to use this iteration as it is the official name of the Conservation Area.

not be directly physically impacted, the ability to appreciate and understand it would be reduced (WG1.9.1).

4.199 The ES includes a Cultural Heritage Mitigation Plan (CHMP). This document identifies those historic buildings that would be subject to recording prior to demolition (either detailed or basic recording). It also describes the programme of historic landscape study which would be undertaken in respect of the areas of Gwent Level back-fen traversed by the proposed motorway. The CHMP identifies the known archaeological sites that would be affected and describes the scope and extent of any work that would be undertaken in order to alleviate any adverse effects. It also identifies areas for further investigation and establishes that an archaeological watching brief would be undertaken during construction (WG1.9.1, WG1.9.2).

The opinion of Cadw

4.200 Cadw has not objected to the scheme but was formally consulted, as a statutory body, on the draft ES and its Supplements, and confirmed that it was in general agreement with the heritage aspects of the ES/ESSs but had concerns about:

- the impact that the scheme would have on the historic landscape of the Gwent Levels
- some historic buildings in Newport Docks
- the evaluation of potential buried archaeology, and
- how preservation was being planned.

Ongoing discussions confirmed the acceptability to Cadw of WG's approach to the assessment of and proposed treatment of archaeology and historic buildings which accorded with the established approach outlined in the DMRB (PIQ81 revised).

4.201 PIQ 81 (revised) addresses the departure from national policy. WG had clarified what could and could not be done as regards preservation in situ. It was also clarified that intrusive investigations across the Gwent Levels would be very damaging and abortive should the Orders not be confirmed. Cadw accepted these responses and confirmed that the claimed departure from national policy refers to the presumption in favour of the in-situ preservation of nationally important archaeological sites. The response additionally confirms that Cadw understand the difficulties associated with detailed intrusive archaeological investigations in the wetland environment of the Gwent Levels and acknowledge that if sites of national importance are identified later, the opportunities for preservation in situ would be limited. Cadw accepts that, in such cases, the departure from national policy (a presumption in favour of their physical preservation in situ) is understandable.

The opinion of NRW – SOCG (ID/155)

- 4.202 The conclusions of the Assessment of the Significance of the Impact of Development on Historic Landscape Areas on the Register of Landscapes of Historic Interest in Wales known as ASIDOHL2 as set out in the ES at Appendix 8.3 are agreed by NRW. In other words, the scheme would result in an appreciable reduction in the capacity for understanding and appreciating the significance of the Landscape of Outstanding Historic Interest and that significant effect cannot be mitigated (CD9.1.4).
- 4.203 NRW also agrees with the conclusions of the ES itself on the effect on the Landscape of Outstanding Historic Interest, which are: *“the Scheme would result in a long term adverse effect on the Gwent Levels Landscape of Outstanding Historic Interest. This results from the loss of land within the registered historic landscape and the consequent severance of several identified historic landscape character areas, along with visual and aural impacts on parts of the registered historic landscape that are not physically affected.”*
- 4.204 WG and NRW have agreed to take forward a programme of historic landscape analysis in order to offset some of the impacts on the registered historic landscape and further screening to protect the setting of Tatton Farm has been included in the scheme but no agreement could be reached on the following:
- the use of CPO powers to acquire additional land solely to offset the effects on the historic landscape, and
 - the necessity to specifically reference reens/ditches within the annexes to the CHMP, as they are included in the item - Loss of land- enabling understanding and appreciation of historic drainage and utilisation of former wetlands.
- 4.205 These matters were raised in NRW's closing submission (ID244) and clarified further in a subsequent letter (ID 254). In relation to the first of the above bullet points, NRW clarified that the use of CPO powers was not being advocated by them. Their advice was to use the land within the existing CPO to offset the effects on the registered historic landscape (possibly on a multifunctional basis). The second bullet related to the tables in the ASIDOHL report and NRW considers this point to remain extant.

The effect of the scheme on the natural environment

The evidence of Dr Keith Jones

The adverse effects of the scheme on ecology

- 4.206 The effects of the scheme on ecology and nature conservation are described in chapter 10 of the ES which explains that the assessment was carried out in accordance with appropriate guidance. NRW were consulted on the scope and methodologies of surveys and regular meetings have been held with them throughout the development of the proposals. Discussions continue with a view to their resolving all the outstanding

concerns of NRW (WG1.18.1, WG1.18.2, PIQ05).

- 4.207 An Assessment of Implications on European Sites (AIES) has been carried out and was reported on separately in the Statement to Inform an Appropriate Assessment (SIAA). The conclusion of the SIAA was that there would be no adverse effect on the integrity of the European sites considered either alone or in combination with other plans and projects.
- 4.208 Changes to the pre-order publication conceptual design, in some cases following requests from NRW, were made to minimise the effects of the scheme on the SSSIs, including:
- reducing the number, changing the location and reducing the size of the water treatment areas
 - moving water treatment areas to the less sensitive north side of the proposed motorway
 - Providing reed connectivity along the north side of the proposed motorway to allow conveyance of floodwater
 - including smaller field ditches to the south of the proposed line, and
 - reducing the 3m highway fence offset to 1m across the Gwent Levels to preserve more of the SSSI land outside the highway boundary (WG1.18.1, WG1.18.2).
- 4.209 About two thirds of the proposed motorway would cross the Gwent Levels and their special SSSI reed and ditch habitat of insects, aquatic invertebrates and the shrill carder bee. The River Usk Special Area of Conservation (SAC) and SSSI would be bridged with approach viaducts on either side, as would the River Ebbw area of Site of Importance for Nature Conservation (SINC) and the port of Newport. An area of saltmarsh on the east bank of the River Usk lies within the SAC, although it is not a qualifying feature for which the SAC is designated and would accommodate the eastern support structure of the crossing (WG1.18.1, WG1.18.2).
- 4.210 The total area of the Gwent Levels is 5,856ha and the permanent land-take would be 115ha or 1.96% of the area of the Levels. Allowing for temporary land-take in addition to the permanent acquisition would temporarily increase that figure to 2.17% (PIQ05).
- 4.211 As potential disturbance to the SSSIs could arise from the land take, construction and operational, of the road mitigation of these effects has been considered as an intrinsic and iterative part of the scheme development and assessment process, as informed by collaborative stakeholder consultation. The large areas of land, included in the CPO, and identified for the mitigation of the adverse effects of the scheme, at Tatton Farm, Mardy Farm and Caldicot Moor exceed the area of land take and is sufficient to satisfy the requirement of the mitigation strategy for

the loss of grazing marsh. A further area of land at the south of Tatton Farm would be used to provide habitat for a great crested newts and further land purchased from Tata Steel would be created as habitat for birds. Ultimately the area of the Gwent Levels available for ecology would be greater than at present (CD2.4.14, PIQ05, PIQ06, PIQ23).

4.212 Other measures to reduce or mitigate the adverse effects of the scheme would include the:

- provision of water treatment areas to control the volume and quality of water discharged to the reën system of the Levels
- maintenance of all existing reën connections under the motorway
- provision of linear mammal fencing alongside the motorway
- avoidance of road lighting other than at junctions and the River Usk bridge
- design of lighting to prevent lighting river channels and banks
- minimisation of light spill
- provision of mammal crossings at suitable locations through the motorway embankment and mammal tunnels adjacent to all reën culverts
- specific planting to guide bats to culverts and other crossings
- an otter passageway near the east pier of the Usk viaduct (PIQ14)
- provision of eel passes on all new sluices, and
- use of existing plants and material from existing reëns and ditches to encourage colonisation of new reëns and ditches by aquatic macrophytes (WG1.18.1, WG1.18.2).

4.213 Where it has not been possible to avoid or reduce adverse effects, in accordance with Highways Advice Note 205/08 of the DMRB, measures to offset such effects would include:

- replacement of reëns not less than a ratio of 1:1
- replacement of field ditches not less than at a ratio of 1:1
- landscape/habitat provision as shown on the Environmental Master Plan
- replacement of saltmarsh
- ecological enhancement of land in the 3 SSSI mitigation locations
- provision of 3 replacement badger setts

- provision of a bat barn north of Magor
- provision of bat boxes
- use of woodland soils and rootstocks in new planting areas, and
- a commitment to investigate the potential for translocation of waxcap turf (CD13.2.6, WG1.18.1, WG1.18.2, PIQ21).

4.214 Measures to be implemented during construction, over and above measures to control pollution, would include:

- a bio-security method statement for site works (including ecology surveys)
- capture and translocation of dormouse, reptiles, water vole and great-crested newt
- removal of bat roosts in the appropriate season
- closure of badger setts in the appropriate season
- preconstruction surveys for bats, badger, water vole, otter, great crested newt and features of importance to the grass snake to confirm measures required during construction
- clearance of vegetation suitable for nesting birds outside the bird breeding season
- management of surface water and groundwater during construction including maintenance of water levels in reens and field ditches, dewatering of borrow pits and provision of temporary water treatment areas
- construction lighting would be designed and managed to minimise light spill outside the working area
- installation of piles for the eastern support of the River Usk bridge outside the main fish migration period
- provision of mammal fencing during construction, if and where required
- provision of means of wildlife escape from excavations; and
- the construction sites at Great Pencarn, Newport Docks and Tata Steel would be restored on completion of construction (WG1.18.1, WG1.18.2).

4.215 For the purposes of the assessment in the ES, the designated sites and nature reserves were considered in their own right, and the other valued ecological receptors were grouped together under ecological units based on the habitats and species present that would be affected in similar ways.

- 4.216 The ES concluded that, whilst there would be increases in annual mean NO_x concentrations and nitrogen deposition at the designated sites assessed, no exceedances of the critical loads are predicted and exceedances of the precautionary annual mean NO_x objective would be limited to only 2 of the 11 designated sites assessed, and then only within 20m of the centreline of each carriageway and thus only a very small proportion of the designated site would be affected. Overall there would be no significant effects for designated sites, for both NO_x concentrations and nitrogen deposition.
- 4.217 The area of saltmarsh affected by bridge construction over the River Usk would be replaced by the creation of new saltmarsh in an area to be used for construction of the crossing once the construction works are complete. Saltmarsh is not one of the features for which the SAC is designated. There thus would be no loss or adverse effect on a key feature of the SAC as a result of land take (WG1.18.1, WG1.18.2).
- 4.218 The land take for the scheme would have significant effects on the local SSSIs even though the additional mitigation and enhancement would commence in advance of construction. Taking a precautionary approach, the short, medium, and long-term effects on the Gwent Levels SSSIs would remain as significant. The effects on the River Usk (lower Usk) SSSI would be slight in the long-term. After construction some sections of the SSSIs to the north of the motorway would be severed from the major part of the designated sites to the south.
- 4.219 All of the grazing marsh areas could continue to be managed and the effects would not be significant.
- 4.220 There would be no land take from Newport Wetlands or from Great Truston Meadows nature reserve or from the main part of Magor Marsh nature reserve which is open to the public. Gwent Wildlife Trust also owns land at Barecroft Common designated as a SINC. Even if this land is considered to be part of the nature reserve, there would not be a significant impact on it from land take, construction and operation of the motorway.
- 4.221 The scheme would also cross non-statutory designated sites including nine SINCs and there would be temporary land-take during construction within 3 of the SINCs. The effects on these areas overall would be significant. During construction there is the potential for significant effects on rivers, saltmarsh, eutrophic standing waters and reed beds (WG1.18.1, WG1.18.2).
- 4.222 No significant effect on habitat would arise from the operation of the scheme but significant long-term effects of land-take on species would be those on the shrill carder bee, other terrestrial invertebrates, common crane and Cetti's warbler. There would also be significant effects in the short or medium term (or during construction) on wet grassland plants, aquatic plants, water, freshwater invertebrates, shrill carder bee, other terrestrial invertebrates, bats, common crane, Cetti's warbler, barn owl

and wintering birds (redshank, gadwall and Pintail). Operation of the motorway would have significant long-term effects on otters, bats, common crane and Cetti's warbler (WG1.21.1, WG1.21.2).

The evidence of Dr Simon Zisman

The effect of the scheme on birds

- 4.223 Details of the desk studies and surveys conducted for birds in preparation of the ES have been made public and the requirement under the Habitats Regulations to prepare information to Inform An Appropriate Assessment has been fulfilled. The conclusion reached was that there would be no adverse impact on the integrity of the Severn Estuary Special Protection Area (SPA)/Ramsar Site (WG1.21.1).
- 4.224 NRW were consulted on bird survey scope and methodologies, and consultation continues. Consultation with the Royal Society for the Protection of Birds (RSPB) has also continued in relation to the mitigation proposals for birds. Habitat loss would be mitigated through the revised Environmental Mitigation Plan, the re-environmental strategy and the SSSI mitigation strategy. The aim would be to create new habitat for water birds and replacement nesting habitat for common crane. Nest boxes would be provided for the barn owls 3km clear of the motorway and the restoration of construction sites at Tata would provide a suitable mosaic of habitats for Cetti's warbler. The early programming of habitat mitigation works would reduce the effects of severance or fragmentation during construction. Construction disturbance to wintering and breeding birds would be minimised through a combination of measures (WG1.21.1, 1.21.2).
- 4.225 The scheme would include measures to minimise watercourse pollution and avoid direct and indirect impacts on wetland habitats and birds using them for foraging, nesting or roosting. Appropriate tree and shrub planting would be set back from the road. The lighting strategy would reduce the risk of direct or indirect changes that might inhibit foraging or roosting by waders and wildfowl on habitats adjacent to the Rivers Usk and Ebbw. Monitoring would be carried out during construction and operation in order to confirm the effectiveness of mitigation measures, and, if necessary, to inform the need for changes to mitigation (WG1.21.1).
- 4.226 The residual effects on birds would include habitat loss, disturbance or displacement, severance, pollution and road traffic casualties. In relation to habitat loss, there would be no significant risk to any of the qualifying species of the Severn Estuary SPA/Ramsar site. There would be no significant impact on SSSI qualifying bird features. The Solutia and Bowkett Field/Barecroft Common SINC's currently accommodate Cetti's warblers and land-take would have a Major adverse impact with an effect of Moderate or Large significance in the short-term. This would diminish to a magnitude of impact of Moderate adverse and the significance of Moderate in the medium to long term, as mitigation areas matured (WG1.21.1).

- 4.227 The scheme would result in significant impacts for the Cetti's warbler, barn owl and common crane. For Cetti's warbler, taking account of the restoration of the land at Tata and other enhancements or mitigation, residual impacts would be Moderate adverse in the long-term and therefore of Moderate or Large significance. For barn owl, land take would reduce foraging areas. As mitigation habitats become established in the medium term, residual impact on barn owls would no longer be significant.
- 4.228 Common cranes, although not specifically protected, are a rare bird in the UK and subject of a recent reintroduction project centred on south-west England. The study area contains suitable habitat for breeding cranes and successful breeding and fledging was confirmed in 2016 and 2017, in habitat adjacent to the proposed line of the scheme. These birds have been ascribed a national or high value and it is likely that land take would compromise the current birds nesting location. Taking mitigation into account, the significance of the effect would be Large/Very Large in the short-term but decline as the mitigation habitat for a nesting crane matured and increased in suitability. In the event that the cranes relocate and nest successfully in this area the medium to long-term impact would be lower, but as the use of the new mitigation nesting habitat cannot be predicted with certainty, a precautionary approach has been taken to the assessment and the habitat loss has been judged as Moderate/Large in the medium to long term (ID187).
- 4.229 The effects resulting from disturbance, displacement and severance have been considered for internationally designated sites, SSSIs, sites of importance for nature conservation and for key bird species. These impacts have all been assessed as being Slight or Neutral with the exception of the impact on Cetti's warbler, which would remain Moderate adverse, with the residual significance of effect remaining Moderate or Large. No significant adverse effect on birds would result from disruption of hydrology or pollution run-off during the operation of the Scheme (ID187).

The evidence of Mr Jonathan Davies

The effect on Dormouse and Water Vole

Inspector's Note

The extensive earlier evidence in relation to both these species was overtaken, effecting a substantial change to and superseding of WG's evidence presented to the Inquiry, by the Statement of Common Ground (SOCG) agreed with NRW (ID105 & ID154). I therefore report the content of the SOCG in Section 6 of this report under the objection of NRW. That largely covers the evidence in chief on these matters.

- 4.230 The scheme would affect areas of habitat of the dormouse, a European protected species and a draft mitigation strategy to offset that impact has been agreed with NRW. The strategy is based on actual survey evidence which led to the conclusion that no bridges across the proposed motorway would be necessary because the population is either side would increase after all the habitat enhancement work had been carried out. This would accord with successful translocation experience elsewhere. The strategy

required a high level of confidence to accord with the high level of legal protection which the dormouse enjoys and its conservation status. It would also include a significant degree of enhancement of the species with an area of 90ha at Coed Mawr being turned into a dormouse habitat (WG1.19.1, ID/154, PIQ30).

- 4.231 The water vole population was surveyed 500 m either side of the proposed motorway and was assessed as being of county value. Proper account would be taken of the location of the animals in the reed mitigation habitat creation work in the SSSI mitigation areas. Fragmentation would not cause genetic exchange between the animals to be an issue (WG1.19.1, ID/105).

Ecosystem Services

Inspector's Note

The issue of ecosystem services and the importance of considering the economic implications of environmental impacts in decision making were raised by GWT and CPRW. In order to address these concerns, WG commissioned an ecosystem services report (ESR). This was introduced to the Inquiry by WG in ID 186. The gist of the report as presented by WG is immediately below.

- 4.232 The scheme would have an effect on 4 broad types of eco-system: the Gwent Levels SSSIs, farmland outside the SSSIs, woodland and scrub outside the SSSIs and brownfield land. A qualitative assessment of the eco-system services provided in each of these four broad types was undertaken. Where they would be lost that would be a negative impact on the local ecoservices.
- 4.233 A total of 125 ha of SSSI land would be permanently or temporarily affected by the Scheme, of which 86 ha would be within the permanent footprint of the motorway. The 3 environmental mitigation areas at Maerdy Farm (34 ha), Tatton Farm (42 ha) and Caldicot Moor (55 ha), total about 131 ha. These areas would be enhanced and managed for floodplain grazing marsh with reens. The aim would be to revert from the current fertilised arable and improved grassland to low intensity species rich grassland. This would have benefits for water quality in these areas by removing fertiliser and pesticide inputs. It is intended that at least one of these areas would be open to the public and provide learning opportunities. Such measures would be a positive enhancement of the ecosystem services of the area (ID186).
- 4.234 Woodland planting would be at a ratio of 2:1 with 103 ha replacing the 50 ha which would be lost, again enhancing ecoservices in the long-term.
- 4.235 Monetary values have been ascribed to the loss and gain of the different services as a result of the Scheme and its mitigation. The methodology and data sources used², together with the limitations and account being

² Monetary values for ecosystem services derived from documents prepared for ONS and UK NEA. These sources include Morris and Camino (2011).

taken of the lime lag for mitigation to become effective have produced a net value of the overall effect on the ecoservices of the area resulting from the scheme. The calculations provide a figure for the estimated loss of ecosystem services benefits of just over £6m (over 100 years). The corresponding estimated figure for the value of benefits arising from mitigation is £7.7m (over 100 years), with the benefits deferred as per the time taken for different habitats to reach functional maturity³. This gives an overall net benefit of £1.7m to the monetary value of the local ecoservices over 100 years arising from the scheme (ID186).

The evidence of Mr Richard Green

The effect on Bats

Inspector's Note

The extensive earlier evidence in relation to bats was overtaken, effecting a substantial change to and superseding of WG's evidence presented to the Inquiry, by the Statement of Common Ground (SOCG) agreed with NRW. I therefore report the content of the SOCG in Section 6 of this report under the objection of NRW. That and the detailed rebuttals to the Gwent Wildlife Trust and others largely covers the evidence in chief on these matters (ID104).

- 4.236 The magnitude of impact that the scheme would have on bats has been assessed and that assessment has been agreed by NRW. Road lighting where bats are likely to be present would be limited to certain junctions and the River Usk Bridge. The lighting will be designed to avoid the surrounding habitat and crossing points. The bat survey highlighted that many of the highest bat activity areas were close to existing busy roads, including the existing M4 (with Pipistrelle roosts located within 140m and 300m). The habitats in the area are already subject to noise and lighting from existing roads, built up areas and main railway line. It follows that bats are either tolerating such areas or have already been displaced. A bat mitigation strategy has been developed for the scheme, as has an agreed SOCG with NRW. A licence would be sought from NRW in respect of disturbance of bat roost or breeding sites, having regard to the tried and tested mitigation proposed (WG 1.20.1, 1.20.2, ID/56a, PIQ08, PIQ16).

The evidence of Mr Nicholas Rowson

The adverse effects of the scheme on the landscape

- 4.237 The ES contains the Landscape and Visual Impact Assessment (LVIA) of the scheme which was carried out in accordance with the DMRB. The LVIA considered construction and operational impacts, day and night conditions for the scheme once operational, and the proposed mitigation at Year 1 and Year 15 after opening. The landscape design as shown on the Environmental Mitigation Plans (EMPs) was arrived at following consultation with NRW and local authorities. NRW and Newport CC agreed

³ The times include 8 years for SSSI habitat and 35 years for woodland.

with the findings of the LVIA, whilst the views of Monmouthshire CC were neutral (WG1.8.1, WG1.8.2).

4.238 The landscaping mitigation measures, based on best practice, would implement the objectives of local planning policy and those of the scheme. Following a review with NRW and local authorities the consensus opinion of the Gwent Levels being best served by a grassland landscape design was adopted. That design would:

- integrate the scheme into the historic landscape
- provide views of the Levels
- create landscape distinctiveness at key points
- ensure structures are visually suited, and
- ensure that the imposing Usk Crossing would be a design “worthy of celebration”.

4.239 The cable stayed bridge over the Usk has been independently reviewed by the Design Commission for Wales who judged it to be of high quality. It would be a major intervention in the landscape, with views ranging from receptors in close proximity to distant views from Wales and England. NRW agreed with the LVIA of the proposed bridge, which would be generally beneficial, particularly in medium to distant views (WG1.8.1, ID/06).

4.240 The landscape impacts of the scheme range from Neutral to Large Adverse in both years 1 and 15. Visual impacts are greatest in year 1; by year 15 planting would achieve the intended visual mitigation. Attempting to completely screen the motorway by tree and woodland planting would create an adverse impact on the historic landscape both physically and visually. It would also have adverse impacts on the ecological quality of the drainage network through shading and could result in loss of SSSI land. In effect, visual screening mitigation would be sacrificed to avoid such impacts.

4.241 The scheme would only be lit at junctions and river crossings, with the Glan Llyn junction lighting being minimal (PIQ53).

4.242 The progressive changes to the scheme design have been subject to LVIA and in some cases have reduced the impact, for example, the lowering of the Magor junction. The proposed alignment, set as far as practicable along the northern boundary of the Gwent Levels, would strike a balance between the effects on the Levels and the impact on residential areas. However, the motorway would have a large or very large adverse impact on the landscape character of the area. Representative viewpoints were

chosen at around 97 locations⁴, including residential and non-residential properties, roads and rights of way. There would be no significant views from 74% of these locations at opening. This rises to 88% 15 years later. There would be significant visual impacts on parts of the study area but the impact on the views of residents would be mitigated as far as possible. Currently the sense of tranquillity on the Levels grows as the distance between the rural landscape, mainly to the south, and the industrial features of Newport, main roads and rail links to the north increases (WG1.8.1).

The opinion of NRW – SOCG (ID 155)

- 4.243 NRW agree with the assessment and conclusions of the LVIA in the ES that there would be significant adverse landscape and visual impacts, including on the highly sensitive landscape of the Gwent Levels. After mitigation these impacts would reduce, but significant adverse effects on landscape character would remain and on a number of viewpoints, residential properties and rights of way. Most of the outstanding recommendations or points made by NRW on landscape matters have been addressed and commitments made in the Register of Commitments.
- 4.244 NRW objects to the design and siting of the proposed Water Treatment Areas on the grounds that they do not relate to the existing field pattern and result in the loss of existing boundary features. Medium/large water bodies and reed beds of polygonal shape, surrounded by steep embankments are not characteristic of this landscape and would be incongruous features. WG has committed to work with NRW at the detailed design stage to review and develop the environmental and landscape design of these essential features.

The evidence of Dr Peter Ireland

Compliance with the Environmental Regulations and Commitments

- 4.245 Dr Ireland sets out the approach to the environmental impact assessment of the Scheme. This includes a description of the scoping, consultation and the main stages in the environmental impact assessment. The Environmental Impact Assessment (EIA) was prepared in accordance with Directives 85/337/EEC and 97/11/EC and the ES has been prepared in accordance with EC Directive 85/337/EEC, as amended by Directive 97/11/EC and Council Directive 2003/35/EC, and as applied by Section 105A of the Highways Act 1980 to road schemes in England and Wales.
- 4.246 It has had regard to the Highways (Assessment of Environmental European Habitats) Regulations 1999 (as amended), the Highways (Environmental Impact Assessment) Regulations 2007 (as amended) and the Conservation of Habitats and Species Regulations 2010. These

⁴ 97 is the figure for the ES; some additional viewpoints were added in ES supplements

assessments were necessary to fulfil obligations set out in the Conservation of Habitats and Species Regulations 2010. These require WG to carry out an Appropriate Assessment of the Implications for any European Site for Nature Conservation that would arise from the scheme should it proceed.

4.247 The ES Scoping Report was issued for comment to Statutory Consultees - NRW, CADW, Newport CC and Monmouthshire CC and responses were received from:

- Natural Resources Wales (NRW)
- Cadw (Welsh Historic Monuments) (ID/135).

4.248 The comments from these Bodies initiated further survey and assessment work, along with measures to mitigate potential impacts. That resulted in a minor addition to the ES and the successive Supplements to the ES were covered by the same process, as was the Statement to Inform an Appropriate Assessment (SIAA) which was prepared under the requirements of the Habitats Regulations. An Environmental Liaison Group of statutory and non-statutory bodies and stakeholders has met frequently and would continue to do so should the scheme proceed (CD 3.1.22).

4.249 The EIA requires the effects of the scheme to be assessed both before and after mitigation having regard to emerging commitments, which although non-statutory are in lieu of planning conditions and WG treats them as auditable and binding. The Commitments Register is open ended until the close of the Inquiry (ID09-ID09f).

4.250 The key environmental mitigation measures are defined in the Environmental Master Plan drawings and the overall mitigation strategy has been optimised to minimise land-take and avoid key environmental assets although on the Gwent Levels additional land for essential mitigation is restricted to the 3 SSSI mitigation land areas at Mardy Farm, Tatton Farm and Caldicot Moore and small corners of fields that would be uneconomic to farm.

4.251 The ES Supplements covered successive additions to the scope of the scheme, and summaries of all statutory authority responses and that from the Rogiet Community Council (to ESS5) are set out in ID128, ID129, ID130, ID135, PIQ149, PIQ154.

4.252 The March 2016 SIAA, published in accordance with the Conservation of Habitats and Species Regulations 2010 and DMRB guidance HD44/09, was updated in August 2017 to include the latest survey and other factual data and an Addendum covering the re-location of businesses and other works in Newport Docks was published on 25 October 2017. The updating of the Conservation of Habitats and Species Regulations 2010 by the 2017 Regulations made no material difference to the SIAA and SIAA Addendum.

Updated Evidence during the Inquiry

4.253 ESS5, which was published during the Inquiry, covers the direct and indirect environmental effects of the works necessary to address the impact of the scheme on Newport Docks and detailed earlier in this report. Some of the sites are adjacent to the River Usk SAC and Severn Estuary SAC and SPA. For these reasons, an Addendum to the SIAA was prepared.

4.254 ESS 5 covering the works proposed in Newport Docks confirmed:

- no change to the essential characteristics of the landscape character area of the Docks which would experience a neutral significance of effect
- a negligible adverse impact during the construction and operation phases for the limited number of affected visual receptors, due to slight or negligible magnitudes of impact
- that during construction, providing a suitable program of archaeological investigation is undertaken, the impacts on buried archaeological remains are likely to be slight or neutral, and
- there would be no impact on the non-designated historic landscape character.

4.255 The LVIA concluded that the impacts would have

- a neutral significance of effect on the landscape character and seascape
- a slight adverse significance of effect on visual amenity, and
- a likely significance of effect of slight or neutral on cultural heritage, providing construction was preceded by a proportionate and suitable programme of archaeological investigation.

4.256 In terms of ecological impact, the overall assessment concluded that, should the port relocation plan be implemented with reasonable and noncontroversial mitigation measures during construction, together with construction best practice, the relocation works, together with the works at South Dock, would not have any greater significant adverse effect than that already reported in the main ES.

4.257 The SIAA Addendum concluded that, assuming the implementation of mitigation measures in accordance with the requirements of the policies of the Newport LDP and the recommendations of the Habitat Regulations assessment of the LDP, and taking into account normal good practice in construction, the proposals would not adversely affect the site's conservation objectives, nor delay or interrupt progress towards achieving these. Nor would the proposals affect the overall assessment of the scheme as this would similarly not affect the site's conservation objectives or delay or interrupt progress towards achieving these. It was also concluded beyond reasonable scientific doubt, that the proposals for works

in Newport Docks would not adversely affect the integrity of the site. Nor would it affect the overall assessment of the scheme. It was considered for the purposes of the relevant regulations that there would be no adverse effect of these proposed works on the integrity of the relevant European sites, either alone or in combination with other plans and projects.

- 4.258 ESS 6 also confirmed the summer 2017 surveys for badger, otter, water vole, reptiles and invertebrates and that no signs of badger, otter or water vole were found.
- 4.259 The ESS 5 and ESS 6 supplements do not constitute an application for consent to undertake the relocation works. That would be obtained using ABP's existing permitted development rights. The consenting strategy includes a separate EIA and Habitats Regulations Assessment. Following surveys at the appropriate time of year no evidence of dormice, great crested newts, badgers, otters, water voles or bats was found within the Docks relocation areas. A good population of grass snake was found and the area is considered to have the potential to support a broad invertebrate fauna commensurate with many brownfield sites. Breeding and wintering birds would be affected by the proposed relocation works, however, mitigation already provided as part of the wider scheme would provide sufficient mitigation for breeding birds.
- 4.260 The assessments and surveys results, as reported in the Supplements and SIAA Addendum, demonstrate that, should the port relocation plan be implemented with reasonable and noncontroversial mitigation measures during construction, together with best construction practice, the relocation works together with the works on the South Dock would not have any greater significant adverse effect than that already reported in the main ES and SIAA. In addition, although the relocation proposals remain to be worked up in detail, including the development of appropriate mitigation measures, there is no reason to believe that WG's duty under Section 6 of the Environment Wales Act 2016 to maintain and enhance biodiversity would be compromised. These duties would be a key consideration of the consenting strategy going forward.

The evidence of Mr Matthew Jones

Requested Modifications

- 4.261 WG, following agreement with landowners and some objectors, discussion with interested parties and minor redesign, proposes modifications to the main Schemes, Side Roads and Compulsory Purchase Orders. These modifications are set out in detail at Annex C of this report.

5 THE CASE FOR THE SUPPORTERS

The material points are:

Supporters who attended the Inquiry

Mr John Evans of The Institution of Civil Engineers Retired Engineers Group (S204)

- 5.1 The Group of about 30 retired Chartered Engineers, Fellows and Members of the Institution of Civil Engineers fully support the scheme, much of the cost of which would be directed at mitigation of its adverse effects. The construction of the scheme across the northern limits of the Gwent Levels, whilst environmentally undesirable, should proceed because of the widespread advantages which would accrue to South Wales.

The Confederation of British Industry (CBI)

- 5.2 The CBI is the U.K.'s leading business organisation, speaking for 190,000 businesses that together employ about a third of the UK private sector workforce.
- 5.3 There is widespread recognition that, in the global race for jobs, modern and resilient road infrastructure is essential. The future of the Welsh economy depends on Wales establishing reliable road connections to its key markets, because over 85% of all freight movement is made by road. The nationwide 2016 CBI Infrastructure Survey highlighted that 97% of the firms surveyed saw the delivery of the government's road investment strategy as important to the U.K.'s future economic growth and 73% of all businesses thought that tackling congestion on the road network was either critical or important to the future operations of their businesses (ID/025).
- 5.4 The M4 connects Welsh businesses and commuters with the rest of the world but the main market for Welsh business is England. The M4 serves two thirds of the Welsh population and over two thirds of the Welsh GDP. Economically, the scheme is crucial for both the future well-being and prosperity of most of Wales south of Aberystwyth and the main South Wales economic powerhouse which drives the economic well-being of the whole country. The M4 generates the wealth for Wales, other schemes like the Metro would simply distribute it.
- 5.5 The existing M4 is already problematic, is obviously heavily congested and grossly unreliable. Importantly, and of great damage to the Welsh economy, it is perceived as being unreliable across the UK and that perception is growing. The Welsh economy suffers because of the congestion. Those damaging everyday problems would grow and the perception of them would increase further. It is clear that these conditions prevent investment into South Wales. That damaging message is frequently conveyed by members across South Wales. This view has not emerged from academic study; it is fact. There can be no doubt that the scheme would transform the business community's perception of South

Wales for development. The construction of an M4 relief road would provide Wales with an opportunity to increase capacity on the critical road network and make Wales a more attractive place to do business, more sustainable and resilient. It is the most urgent of all transport projects in Wales and crucial in the fight to retain businesses in Wales and stave off the threat of removal to parts of the UK that have a more reliable road network, like Avonmouth, which is booming.

- 5.6 The daily threat of the unpredictable nature of the M4 is a major worry that frequently manifests itself in significant penalty costs to hauliers and costly disruption to workforces from Aberystwyth south and from Pembrokeshire to Newport. Outside Wales the recipient organisation, or the suppliers, also suffer this hidden financial burden that eventually gets passed onto the consumer. The area has many component factories that rely on "just in time" delivery and suffer financial penalty when congestion bites, as it frequently does. These costs are not reflected in the economic analysis of the worth of the scheme to the UK and therefore, it is obvious that the cost benefit results, as reported, underestimate the true position.
- 5.7 South Wales has a history of skilled engineers and the local economy is ready to take off if the new M4 is built. The region has low costs, land available and relatively inexpensive, low wages and available people. It is a natural place for development once the gateway is unlocked.
- 5.8 Given the severity of the current problem, by 2035, it is obvious that the substandard M4 would be completely congested, overwhelmed, and even more unreliable throughout the day. That would be unsustainable and must be prevented from happening. Investment in public transport would fail to solve the problem. It is also obvious that the Metro and other public transport improvements would only have a minimal impact on M4 traffic. Given that current road use is already causing operational problems and the considerable time it takes to complete a complex motorway project it is of fundamental importance that action is taken soon to build a relief road. This must be based on the sustainable published scheme, as other alternatives along the so-called Blue Route are completely insufficient. What is needed is a modern, efficient, safe and resilient primary route for strategic traffic through to central South and West Wales.

Mr Jonathan Price - Chief Economist to WG (S210)

- 5.9 The economic performance of the Welsh economy is relatively weaker than in many other parts of the UK and in other developed nations. A major strategic enhancement of the M4 corridor at Newport could help address the issues that have been shown to underpin weaknesses in the Welsh economic performance. Studies and evidence indicate that the key factors that explain the relatively poor Welsh economic performance include:
- a relatively low level of skills
 - a relative lack of, and limited access to, centres of economic mass and therefore limited scope to gain the benefits of the economies of

agglomeration - this is also associated with lower pay and productivity, and

- a demographic profile that means Wales has a higher than average share of uneconomic, dependent people.

5.10 In general terms, the potential for transport improvements to have economic benefits is highly plausible. The most basic insights of economic theory include the findings that there are benefits from specialisation, from exchange and trade, and from competition. Gaining these benefits typically requires the movement of people and things. Obstacles to such movement, such as traffic congestion, are highly likely to inhibit economic activity. More specifically, the evidence about Welsh economic performance implies that improvements in transport links have the potential to benefit Welsh economic performance through:

- increasing effective economic mass,
- improving access to centres of economic mass outside Wales
- increasing the attractiveness of Wales as a business location, and
- in some cases, improving the linkages between places of residence and employment.

5.11 Research by the OECD also shows that transport infrastructure can promote economic growth, particularly in regions which are lagging behind others economically, but for transport investment to be successful in stimulating growth the other elements necessary for growth needs to be in place. The Eddington Transport Study included a very thorough review of the evidence on the links between transport and economic performance and supported the above conclusion. This stressed the need to focus on the removal of congestion, or unreliability, from the transport network.

5.12 The M4 around Newport serves critical economic factors, including connecting South Wales and South West Wales with centres of economic mass outside Wales, linking and strengthening centres of economic mass within Wales and facilitating journeys to work. Should the M4 be constructed, the capital Cardiff City Region, which already enjoys some benefits of agglomeration, would not suffer from the "out-migration" of economic activity because it is of sufficient size (ID/024*).

**Transport Investment and Economic Performance: Implications for Project Appraisal - known as The Venables' Report.*

5.13 There are good reasons to suppose that the growth of semi-autonomous and autonomous vehicles could increase the demand for travel by road, partly through extending mobility to groups that are currently excluded, particularly the elderly. These developments would enhance the case for the scheme.

- 5.14 A major enhancement to the capacity of the M4 corridor around Newport would meet the conditions under which it is reasonable to expect a significant contribution to Welsh economic performance. Achieving this in practice depends on getting a scheme that delivers significant transport benefits and maximises value for money.
- 5.15 In recent years, evidence suggests that the forecast future costs and benefits arising from road projects has been reasonably accurate in England, thereby indicating that the estimates that are set aside for the scheme would provide good value for money because the estimating has followed the now established practice adopted for the English and Welsh road programmes.

The Freight Transport Association (S191)

- 5.16 The FTA represents over 15,000 members who provide the transport of freight at home and abroad by rail, road, air and sea and operates 200,000 commercial goods vehicles on UK roads. It fully supports the proposed scheme and its detail but encourages a solution to the problem of partly isolating the Road Chef MSA from the proposed road.
- 5.17 The efficient movement of freight underpins the UK economy but it costs £1/minute to operate a modern articulated vehicle and therefore congestion has a huge adverse financial impact on hauliers. The Welsh economy requires 250,000 tonnes of goods to be moved by lorry each day, and economic recovery will increase that demand. The current improving economy resulted in a 7% increase in traffic crossing the Severn crossings into Wales in 2015. A study has predicted that reducing tolls would result in an increase of 11,000 vpd on the M4, but because that study was undertaken whilst the economy was in recession that figure may be an underestimate. The current M4 congestion would therefore be exacerbated unless the scheme is built quickly.
- 5.18 The M4 corridor is of great strategic importance to Wales, providing a link to Ireland, all regions of England, Scotland and into Europe. Transport is a top consideration for international businesses when deciding where to base their operation. In terms of economic benefit, transport investment yields several times what it costs. The Welsh supply chain moves goods by road much more than by other modes, so maintaining targeted road investment is vital to securing the economic future of Wales.
- 5.19 The M4 is part of the Trans-European road network (TERN) and plays a key strategic role in connecting South Wales with the rest of Europe. It is the key east-west route and gateway into South Wales and the section of motorway around Newport is one of the most heavily use roads in Wales. It is therefore essential that the development of the M4 around Newport is not seen as a local issue. It is strategic, although it is also important to the local economy together with those of Cardiff, Swansea and West Wales. The strategic importance of the M4 demands that it be viewed in the national context, has capacity for the future and be of benefit to all road users whether that be local, national or international.

South Wales Chamber of Commerce (S132)

- 5.20 An overwhelming majority of members of the Chamber, from along the South Wales M4 corridor, support the scheme which they believe would be of significant benefit to businesses across the whole of Wales. The scheme would immediately remove the dreadful uncertainty and cost that the many businesses that use that stretch of the M4 currently face. It would make inter-regional and international trade easier for businesses throughout South Wales and, more fundamentally, it would ensure the future well-being of Wales has an effective strategic transport infrastructure, thereby raising the international profile of the country as a whole as an accessible and well-connected place in which to work and live. That would encourage development and off-set the widespread perception of South Wales being inaccessible because of the frequent, sometimes major, problems on the current motorway.

Mr Tim Gent of St Modwen Developments (S139)

- 5.21 St Modwen Developments fully support the scheme which would provide a major economic stimulus to South Wales and would remove a significant and very costly blockage to growth across the whole of the region. This claim has been proven recently in a report by the data analysing company INRIX which specialises in transport and mobility issues (PIQ/091).
- 5.22 The proposed junction locations are appropriate, efficient and welcome. They would serve the Glan Llyn project, for the construction of 4,000 homes, and other adjacent development, including park and ride, well. Many of the alternatives would be unable to do that and would therefore be unsustainable.

Mr Eddie English (S196)

- 5.23 Mr English is a resident of Rogiet and one who resides close to the existing motorway network, which, he observes, frequently experiences a back-up of congestion stretching east from the tunnels along the M4 beyond Magor. He also observes that, despite the presence of a busy motorway, the area is still blessed with an abundance of local wildlife, including birds that do not seem to mind traffic noise. The UK currently has the lowest level of carbon dioxide pollution for over 100 years. Eliminating the congestion is bound to reduce carbon. The quicker the M4 is built the better for the future well-being of people, the environment and the economy. The effect on nature is exaggerated and, should the scheme be built, wildlife would quickly adapt.

Written Support for the scheme

Support from South Wales Local Authorities

- 5.24 Support was received from the following widespread Councils across South Wales, as depicted on the map of the region at ID131:
- Monmouthshire County Council (S182),

- Newport City Council (S192),
- Cardiff City Council (S217, ID/096, ID96),
- Caerphilly County Borough Council (S199),
- Rhondda Cynon Taff County Borough Council (S195), and
- Neath Port Talbot County Borough Council (S203).

Monmouthshire County Council - Sir Fynwy (S182)

5.25 The scheme is needed as the main element in a modern, accessible, integrated and sustainable transport system in South East Wales. It would improve access for Monmouthshire residents wishing to travel to Cardiff and the West and provide additional motorway access between Undy and Rogiet, whilst reducing traffic on the B4245 through Magor thereby satisfying the council's long-standing endeavour to bypass these communities. The Undy junction would improve access to the Severn Tunnel Junction Parkway station. The Council also welcomes the proposals to:

- create 2,000 mostly local jobs
- lower the motorway to the west of Magor
- plant extensive areas of woodland
- provide the Barecroft Common to Rush Wall cycle track and the elevated footway and cycle track and provide an underpass at St Brides Road, and
- consider a new footpath alongside the B4245

Newport City Council (S192)

5.26 The City Council, having previously supported the scheme discussed it at a meeting on 28 November 2017, and resolved to accept the Inquiry as the legitimate forum for investigating the outstanding issues associated with an M4 relief road. The Council had previously unequivocally expressed support for the scheme as a way of easing traffic congestion in and around Newport. It now urges the Inquiry to reach a balance conclusion having regard to transport, environment, public and business concerns in Newport and south-east Wales (ID 176).

Cardiff City Council (S217)

5.27 This crucially important scheme would address the continuing problems of the M4 congestion and delay. In removing a critical blockage on the principal strategic road lifeline of the South Wales economy, it would stimulate economic investment and future growth in the Cardiff Capital Region. It would be a major element of the transformational infrastructure

required to unlock the vast development and growth potential of the region and boost its competitiveness.

- 5.28 An M4 relief road could be developed to integrate with a wider programme of transport infrastructure, such as the Metro and, if developed in combination with sustainable transport and highway infrastructure in Cardiff, would offer the potential to relieve existing pressures and support the delivery of the modal-shift agenda. The Council is wholeheartedly committed to engaging with WG to advance the project and associated local developments to mitigate any adverse effects (ID/096).

Caerphilly County Borough Council (S199)

- 5.29 The Council supports the scheme and further development to the local and regional highway network, bus services, the Metro and railway stations. The scheme should not increase the risk of exacerbating existing congestion affecting junctions 26, 27 and 28 on the M4.

Neath Port Talbot County Borough Council (S203)

- 5.30 The Council strongly supports the improvement of the M4, the economic artery of South Wales, which is as important for the County Borough and the Swansea Bay City region as it is for south-east Wales. Modern infrastructure is an essential component of any program to create jobs, regenerate the valleys, or wider region and provide future opportunities for our young people. Now is the time to address the M4 congestion at Newport and offer sustainable transport for the future.

- 5.31 Against that background the Council is concerned about the imbalance in the debate concerning the Well-being of Future Generations (Wales) Act 2015. It is accepted that the sustainable development principle, the heart of the Act, is vitally important, but it is equally necessary not to lose sight of the other well-being goals. These include a prosperous Wales, a resilient Wales, a more equal Wales, cohesive communities and a vibrant culture and language. None of these considerations can be divorced from the economic context and the necessity of creating and sustaining jobs and new industries going forward. That all depends to a significant extent on infrastructure, and the construction of the M4 would provide an immediate boost to the whole of the economy in terms of job creation and investment. There is a compelling case for proceeding quickly with the scheme.

Rhondda Cynon Taff County Borough Council (S195)

- 5.32 The Council fully supports the scheme which would deliver a key role for economic growth, improving the future lives of people and connecting communities, businesses, jobs, families and services. The M4 corridor is of strategic importance to the Welsh economy, not only to the towns and cities along the coastal belt of South Wales but also to West Wales and the South Wales valleys. It acts as the gateway to Wales for tourists, businesses and the transport of goods and services for local residents and businesses.

- 5.33 Current conditions on the M4 between J24 and J29 results in congestion, delay, a deterioration in local air quality and an impact on safety. This length of strategic road is also burdened by local traffic which uses it as a distributor route. The current problems will worsen in the future, but if solved could raise the economic prosperity of the region, which currently is below all but one of the English core City regions. It is evident that the significant connectivity issues across the region make it difficult for people in the Rhondda Cynon Taff and Valley communities generally to access economic opportunities.
- 5.34 It is recognised that the development of the scheme, which would address traffic, safety and health problems predated the provisions set out in the WCFG 2015 Act. However, the scheme would wholly accord with and support the objectives set out in the extant national policies:
- Wales Infrastructure Investment Plan for Growth,
 - Wales Transport Strategy 2008,
 - National Transport Plan, and
 - Wales Spatial Plan.
- 5.35 It would have local benefits to the Newport area but would also have a much wider and positive impact for the residents and businesses based in the mid-valleys area, in particular economic benefits of increased capacity to accommodate future growth in journeys, improved reliability and between the South-East Wales valleys and the markets of the rest of the UK and mainland Europe.

Support from Mr Paul Flynn, MP, the Member of Parliament for Newport West (S218)

- 5.36 Mr Flynn, the elected MP since 1972 and former Chairman of the Gwent County Council Transport Committee, fundamentally opposes the alternative Blue Route suggestion but strongly supports the scheme based on his long-standing knowledge of:
- traffic congestion, which has plagued Newport and the rest of Gwent for 70 years
 - the perceptions of delays and chaos, that blight local commercial life
 - the existing, unacceptable, compressed traffic and environment conditions along the A48 SDR
 - the areas of local ecology and former industrial sites, and
 - health issues arising from traffic pollution, particularly in urban areas.

- 5.37 In Mr Flynn's view the Brynglas Tunnels are now one of the UK motorway network's major congestion points, which cost commerce and private individuals a fortune, whilst local people have to suffer the intense frustration of having to sit in daily traffic jams. A relatively minor motorway accident forces traffic onto the already crowded streets of the city and imposes hours of gridlock as the urban roads become jammed. The closure of the motorway for maintenance also results in gridlock, trapping vehicles in car parks and at all key junctions for hours.
- 5.38 In his opinion, should the Blue Route be constructed such events would be commonplace. Apart from that, the SDR, along which the Blue Route would run, fulfils a vital distributor-road function for Newport. It is used to capacity at peak hours and further loading would negate its effectiveness.
- 5.39 Without an efficient M4 relief road traffic from all along the South Wales coast road would be severely restricted, discouraging development and inhibiting prosperity.
- 5.40 The objections of environmentalists, whilst respected, must be balanced against the realities of the present and consequences of future traffic growth. Both the Newport City and Gwent Councils have a long, successful record of protecting the natural habitat against damaging developments. That would continue after the scheme was constructed. Whilst any loss of natural habitats is to be regretted that must be balanced against the natural gain in habitat areas resulting from the de-industrialisation of much of the area, including the massive Llanwern site, which is returning to its previous rural state thereby boosting opportunities for the bounteous return of flora and fauna. The grossly polluting industrial sites of the past are being replaced with parks where nature and habitats thrive. Some objectors, many of whom are foreign to the area, exaggerate their cause by setting an excessively pessimistic outlook.
- 5.41 The objection of ABP appears to be largely unjustified. This view is founded on experience as a former representative of the Gwent County Council on the South Wales Docks Board, when it became quite apparent that the interests of ABP, who have their own agenda, is distinctive from the interests of the local area. That appears to remain the case. Much of the docks owned land which is under threat from the scheme has not been used for dock's related activity for decades and is now semi-derelict. ABP have greatly exaggerated their evidence to the Inquiry and it is significant that Newport Docks had no master plan until the scheme was published. This plan now seems to be no more than an attempt to maximise compensation by exaggerating future trade and development prospects.
- 5.42 Deaths related to road traffic pollution are serious. The scheme would remove pollution from areas where people live. The Blue Route would concentrate pollution in areas where people live. It should be noted that where the M4 runs past Newport it does so in a "canyon", with high slopes that inhibit the dispersal of pollution by winds.
- 5.43 Whilst the philosophy of removing people from cars and onto trains is a

worthy one, imposing misery on the people of Newport by denying the city a new motorway would be wrong, as the scheme would be immaterial in solving problems that affect the Planet. In contrast, the scheme is tailor-made to solve the acute local problems of today, negating the otherwise "hell of gridlock" and intensification of pollution that would otherwise ensue.

- 5.44 Finally, Mr Flynn considers that delaying the construction of the scheme would condemn the people of South Wales to years of traffic misery and Newport people to increased pollution.

Support from Industrialists, Institutions and Associations

Tata Steel (S138)

- 5.45 The company employs 700 staff at the Llanwern steelworks, of which approximately 30% live to the west of Brynglas Tunnels and frequently experience journey to work delays.
- 5.46 About 20,000 lorry journeys are made on behalf of the company over the substandard Newport section of the M4 each year. The haulage costs for the Port Talbot and Newport plants are significant and inflated because of the M4 delays. This overhead of costs impacts on the viability of the works at Port Talbot, Llanwern, Orb and Trostre. Many customers rely on just-in-time deliveries and the uncertainty imposed by the motorway congestion is a constant threat, which potentially could result in lost custom. The scheme is therefore crucial for the future prosperity of the company sites in Wales.

Network Rail (S206)

- 5.47 Network Rail fully supports the scheme which has been developed in a collaborative way and would deliver significant benefits to people, communities and business and provide infrastructure that serves the needs of the twenty-first century.

Road Haulage Association (S51)

- 5.48 The scheme is supported by the RHA.

Institution of Civil Engineers (S5)

- 5.49 The Institution fully supports the scheme.

The Gwent Police (S207)

- 5.50 The scheme is needed to modernise the South Wales motorway network which currently suffers from intermittent hard shoulders, which, in turn, give rise to incidents and delays. Normally the M4 north of Newport is working at full capacity during the daytime, with long delays in the early evenings. When there are major events in Cardiff the motorway is unable to cope with the additional vehicle movements into and out of South

Wales. With the A48 SDR also nearing capacity during the daytime any problems arising on the motorway quickly result in gridlock of Newport City Centre and along the A48 SDR which can affect the emergency routes through and within the city.

Newport Civic Society (S183)

- 5.51 On the whole, the Society membership, in strongly supporting the scheme, reflects the views of local people and politicians, and the scheme is considered essential, together with the minimisation of its impact on the Gwent Levels. The concerns of the Port of Newport should be constructively resolved because of its importance to the local and regional economy. The road would boost prosperity across the wider Welsh economy.

Institute of Directors (IOD) (O134)

- 5.52 The IOD has over 700 members in Wales across a wide variety of business sectors located in all parts of the country. Improved transport infrastructure in general, and the M4 in particular, is a priority for the membership in Wales who have expressed frustrations and dismay at the economic damage and negative impact that the current M4 has on the current and future economy of Wales. The scheme is seen as a critical improvement necessary to benefit Welsh prosperity and should be built quickly.

Cardiff Airport (S194)

- 5.53 The Airport Board support the scheme which they consider would alleviate unreliable journey times and traffic congestion and be a significant benefit to Cardiff Airport. Improving surface access to an airport encourages growth and improves the opportunity for the region to compete better in a global market. Easy access to the airport has the effect of widening an airport's catchment area and encourages airlines to invest in future prosperity through new flight routes particularly long-haul routes.
- 5.54 The scheme would have the effect of improving customer perceptions of the region, which in turn stimulates growth. The population of Gwent represents a significant market for the airport but statistics show that the vast majority of those passengers flew from English airports rather than using Cardiff, even though their destinations could be reached from Cardiff. Improved road access to the airport from the eastern part of the catchment area would significantly increase penetration of this particular market and the consistency of surface journey times from the east would make the option of using Cardiff Airport much more appealing to those customers.

The Welsh Rugby Union (WRU) (S214)

- 5.55 The WRU fully support the scheme which would provide a resilient long-term solution to the problems of road access to Cardiff. The current M4 has been the focus of high-level media scrutiny and damaging criticism

over the lack of capacity when major events are staged in South Wales. Historically this inadequate network has seen high levels of traffic congestion around the area, with the network struggling to accommodate normal background traffic, let alone the specific additional loading during the pre-and post-event time periods. The Principality Stadium, one of the finest in the world, has a capacity of 74,500, but, in addition to those numbers, many thousands of ticketless fans travel to Cardiff for major events. The scheme is essential to provide the necessary capacity, remove the undoubted frustration that occurs and provide a resilient primary route capable of accommodating peak traffic flows around the existing M4 bottleneck.

Welsh Football Trust (S189)

- 5.56 Being located in Newport, the Trust has observed at close hand the corrosive effects that the existing road conditions have on investment, employment and opportunity. This would be relieved by the scheme which would provide a safe and resilient primary route into South Wales.

Port of Milford Haven (S31)

- 5.57 The Port of Milford Haven is a core port within the Ten-T Network and the Wales landfall for the largest and most important South Wales ferry service to Ireland. The M4 is a vital trade route for businesses in South-West Wales and improvements to this route could potentially open up new markets for port development, stimulate further investment and create opportunities for additional trade from that area. Rapid progress on this vital piece of infrastructure should be made.

This Walters Group, Celtic Energy, Ffos Las Racecourse, Gorrell Equipment Solutions Ltd and Likes Landrover (S177)

- 5.58 These companies, based in South Wales and the South West of England support the scheme because it would help them maintain and improve employment within both these areas. They currently employ over 600 people and the scheme would assist the significant expansion of that number.
- 5.59 The companies' supply chain is based in the local and regional economy and would benefit directly from the scheme as would the greater Welsh and South West economies. Much improved access to markets would be delivered by this substantial engineering project but a "sticking-plaster" solution advocated by some would not be effective but negate the promotion of Wales as a dynamic place to do business. Some proposed strategic alternatives would stifle any ambition of Wales becoming a vibrant economy in the future. In contrast, the scheme would provide an effective, confidence building solution with a gateway to Wales that is attractive to investors.

Symmons Madge Associates Ltd (S174)

- 5.60 The training and development company based in the Vale of Glamorgan

runs courses across the UK and draws a number of its tutors from England. The unpredictability of journeys along the M4 impact on costs and the time which delegates have to spend. These delays are extremely embarrassing and frustrating to the business. A petition, with 200 individual names has been gathered, with another of about 80 names with individual commentary expressing views as to why the scheme should be built, has been gathered. These have been submitted with reasoning and all fully in support of the scheme.

Arundal House Estates (S160)

- 5.61 The company owns the Maesglas Industrial Estate, Newport, a development of 28 units totalling 165,000 ft² (15,334 m²) of business and industrial accommodation. Managers of the company have seen the relentless increase in traffic on the M4 in the last 30 years. This is now congested, unsafe and unreliable in terms of predicting journey times. The scheme is therefore supported but any alternative which would utilise the upgrading of the existing Newport SDR would have an unacceptable impact upon the local business traffic to the south of Newport, including adverse effects on accesses, the environment and the appeal of the estate.

Stephens and George Ltd (S168)

- 5.62 The established Print Company, based in the Valleys, transports its raw materials and finished products along the M4 corridor towards London and the South-East, where 80% of the business is located. The uncertainty and delays associated with the current road threaten the future of the business, the well-being of which would be secured should the scheme be built.

VAN-SPORT (Edward Davies Commercials Ltd) (S156).

- 5.63 The company is based at the Langstone Business Village off J24 of the M4 and has observed the constant delays to staff and clients because of problems with the M4. The scheme should be built quickly to solve this.

South Wales Forgemasters (S106)

- 5.64 The company exports over 90% of its manufactured goods and experiences first-hand how unreliable and costly the existing M4 is to business. The company is required to maintain stringent timescales for the delivery of raw materials and the dispatch of finished goods so essential in maintaining a high reputation as a company capable of delivering goods to world-class markets on time. The current M4 negates this but the scheme would guarantee the basis for future prosperity.

International Greetings UK Ltd (S80)

- 5.65 The company has an annual £80 million business. It employs over 400 full-time employees in South Wales, exports 35% of its produce worldwide and is particularly reliant on over 5,000 HGV movements annually in and out of South Wales via the M4. On-time deliveries are crucial. The current

problems on the M4 frustrates this but the scheme would overcome them.

Carlsberg Supply Company UK Ltd (O98)

- 5.66 The current congestion on the M4, which results in unreliable journey times, increased costs and associated environmental and safety issues is unacceptable and a barrier to wider economic growth, sustainable development access to job opportunities and creates an impact on those who work and live close to the existing route. The principle of the scheme is therefore supported.

Renishaw (S114)

- 5.67 The international company is a world leader in engineering and scientific technology. It operates from more than 70 locations in 35 countries. Its future investment strategy includes planned expansion of the Miskin plant located near J34 of the M4 and consequently the company fully support the scheme, which would be hugely beneficial for Central and West Wales as well as the M4 corridor.

Bisley Office Equipment (S126) and Quinn Radiators Ltd (QRL) (S122)

- 5.68 The Bisley Company employs over 600 people in south Newport and manufactures and distributes by road up to 15,000 steel storage units each week, using over 30 articulated trailers each day. QRL manufactures over 1 million products each year and its planned growth needs to attract the best workforce, so ease of travel and good networks are vitally important. The congestion on the existing M4 negates this and prevents new employees coming to the area because of the severe congestion and uncertainty of travel across the county. QRL has a UK wide sales force which regularly visits the head office in Newport and congestion is becoming a major issue in lost production time.
- 5.69 Both of the companies have an extensive supply chain and accept 24- hour deliveries seven days a week, so are reliant upon the just in time deliveries being guaranteed. Congestion on the M4 prevents this but the new scheme would guarantee timely deliveries, increasing prosperity for the companies and their employees.

The Penderyn Welsh Whisky Company (S85)

- 5.70 The Welsh Whiskey Company is an independent distillery that distributes whiskeys and other spirits throughout the UK and worldwide and frequently witnesses how the existing M4 has a corrosive impact upon investment and trade in Central and West Wales. The scheme would provide the necessary relief to the bottleneck at Brynglas Tunnels in a safe and resilient manner.

Sigma3 Kitchens Ltd (S166)

- 5.71 The company, which manufactures kitchens, bedrooms, home and office equipment relies heavily on the M4 to bring supplies into the factory and

send goods out to the market eastwards beyond Newport. The current M4 congestion causes delays, negatively impacts on costs and damages company reputation. The scheme would remove it in a safe, sustainable and resilient way.

Eco2 Ltd/WG Energy and WG Environment Sector Panel (S117)

- 5.72 A key issue with economic growth in Wales is maintaining transport connections with international airports such as Heathrow and the Finance Centre in London. Efficient motorway and rail connections are vital to bring both businesses into Wales and keep the indigenous organisations operating in the country. A major factor identified in earlier studies was that organisations which grow to significant scale and require more international business need good communications. The lack of reliable journeys along the M4 has been a negative factor in the relocation of some of the largest companies from Wales to the East of England. The scheme would help prevent that and be good for the future well-being and prosperity of Wales.

Island Steel UK Ltd

- 5.73 The company has been consistent in its support for the scheme which must be built along the published route.

Support from the General Public

- 5.74 The material points made in written submissions by members of the general public included views that that the scheme would:
- facilitate regeneration and development in Newport
 - improve local air quality and assist the aspirations of the Well-Being of Future Generations (Wales) Act 2015, (the 2015 Act), even though it may be detrimental in the medium term
 - facilitate the removal of contaminated land
 - provide good views for thousands of travellers
 - improve the future prosperity of local and national economies by enabling the expeditious movement of freight vehicles and reducing transport costs for individual companies and the nation
 - enable locally distributing traffic to be carried on the existing, converted motorway, clear of less suitable residential local roads, which currently carry the burden of such traffic, through Magor, through central Newport and along Caerleon Road, Newport
 - improve access to the Docks and other industrial areas in southern Newport by the provision of a high quality resilient road
 - be a major benefit for tourism prosperity in West Wales, through the

reduction of substantial holiday delays and the wide-ranging perception of unsustainable delays at Newport which put customers off travelling further west to the South Wales resorts

- bypass of the existing M4, which, of regional necessity, has to act as a "collector-distributor road", for the distribution of traffic through a plethora of junctions to northern and central Newport and to the northern valley roads beyond, which renders it completely unsuited as a sustainable through route for strategic traffic
- remove the enormous variation in journey times along the M4 north of Newport, a stretch that frequently experiences unpredictable delays varying between 40 minutes and 2 hours
- remove delays that are worrying for disabled people and others who need to rely on a swift and reliable passage
- be a major benefit for local commuters who are frequently and frustratingly delayed by regular and unpredictable problems on the M4
- eradicate the cumbersome polluting diversion of Caerleon Road traffic through urban central Newport in order to proceed westward on the current circuitous route to Cardiff, and beyond
- remove a barrier to recruitment for Newport-based firms
- help South Wales achieve a good road link to Heathrow and the City of London, which is seen as essential in the South Wales business community
- provide an infrastructure of national importance which would be capable of accommodating economic growth and fostering future prosperity
- eradicate the delays and unsustainable standard of the existing M4 from the national strategic road network which are serious deterrents to those wanting to pass through the area for business and pleasure
- be a major economic stimulus to South Wales by catering for 80% of South Wales business that has to be conducted through the M4 corridor (PIQ09)
- be sustainable in the long-term and provide major relief at J28 of the M4 (PIQ47)
- remove a corrosive negative impact to potential investment in Central and West Wales
- provide good junctions along the scheme that would serve housing and commercial areas well and enable a considerable sustainable

expansion of Newport to proceed, and

- provide a long-lasting modern high-quality strategic route which is superior to its alternatives, some of which are theoretical and not properly engineered to suit the strategic demands placed upon them and remove the widespread negative perception of inaccessible South Wales.

Preamble to and index of Section 6 of the report

This is to assist the reader in locating, within the 213 pages of reporting of the cases for the large number of objectors in Section 6 of the report.

I have reported on the gist of objections in the following order, with WG responses to them summarised immediately following the particular objection:

1. Those objectors who attended the Inquiry and presented evidence for examination
 - first Statutory Objectors*,
 - then Non-Statutory Objectors.
2. Those objectors who did not attend the Inquiry but relied on their written statements
 - first Statutory Objectors*,
 - then Non-Statutory Objectors
3. All remaining written objectors who relied on their original written objections.

**For schemes being promoted under The Highways Act 1980 or The Acquisition of Land Act 1981, a Statutory Objector is limited to "that Council, Authority, Statutory Undertaker or person defined by Schedule 1 Part 1 Section 3 of the Highways Act 1980". I have followed that definition in marshalling the objections synopsis in this report.*

For convenience, where an objector fielded a number of witnesses in support of its case, some attending the Inquiry and others only submitting written statements, I have reported that case, in one block, as if all witnesses had attended the Inquiry.

Where alternatives were proposed and objectors attended the Inquiry to advocate them these have been addressed in Section 7 of this report and also alongside the case for the objector. In particular:

- Alternatives 1 and 2- the Blue Route advocated by Professor Stuart Cole has been addressed under the objection of Cycling UK the umbrella organisation under which Professor Cole chose to attend the Inquiry- this features at paragraphs 6.426-6.432
- Alternative 27 advocated by Mr Robert Waller is addressed at paragraphs 6.322 and 6.361
- Alternative 22 advocated by Mrs Ann Picton is addressed at paragraph

6.687

- Alternative 3 advocated by Mr Geoff Wynton and Mr Mike Smith has been dealt with at paragraph 6.524
- Alternative 11 advocated by Roadchef is addressed at paragraphs 6.672-6.681
- All other alternatives, submitted as written suggestions and not advocated in person at the Inquiry, are also covered in Section 7 of the report

Section 6 Contents

Statutory Objectors who appeared at the Inquiry	Page
NRW (0268)	126
Mr Purnell on Flooding	129
Statements of Common Ground	130
Wentlooge Community Council (06904)	136
Rogiet Community Council (0206)	137
Associated British Ports - Newport Docks (0031)	138
Tenants of Associated British Ports at Newport Docks	143
Mr Rabbitt (0209)	145
Marshalls Mono (0329)	146
The Parc Golf Club (0049)	147
Green Dairy Farm, Rogiet (O232)	148
New Park Farm, Castleton (O227)	150
Miss A. Park, Miss S. Park, Miss V. Park, MR A. Park (O231)	150
The Beeches, Undy (O235)	150
Gwent Wildlife Trust (0270)	
Professor Calvin Jones on economic case for the Scheme	152
Professor John Whitelegg on transport economics	156
Professor Lorraine Whitmarsh on climate change	159

Professor Terry Marsden on sustainability	160
Professor Kevin Anderson on climate change	162
Professor Sir John Lawton on conservation principles	164
Professor Altringham on bats	166
Mr Richard Bakere (GWT) on Magor Marsh Nature Reserve	169
Mr James Byrne – overview	171
Mr Michael Webb on cumulative impacts	178
Mr Geoff Liles on otters	179
Ms Lindi Rich on otter surveys and works in Newport Docks	182
Professor Neil Ward on water quality	185
Mr David Boyce on invertebrates	186
Ms Lindi Rich on pollution	189
Mr Iolo Williams	192
Professor Maltby & Mr Byrne on ESR	193
Non-Statutory Objectors who appeared at the Inquiry	
Mr Waller (0707) strategic objection and alternative	198
Friends of the Earth (Cymru) (0125) - Mr Gerald Kells	206
<i>Cycling UK (0247) incl. the Blue Route (Alternatives 1 and 2)</i>	
Mr Geffen and Dr Mackay	216
Dr Melia	217
Professor Stuart Cole	220
Supplementary evidence of Dr Mackay	229
Magor with Undy Community Group – Cllr Taylor & Dr Bisi	232
Mr P J Cromwell (0099)	237
Mr Alan Wilkins - Light Rail Transit Association (6901)	238

Mr A R Pickup (O77)	239
Ms Jane Blank (O6910)	241
Mr/Mrs Smith (O210) & Mr/Mrs Wynton (O287) – Alt. 3	245
Mr Tyrone Broome of Llandevenny (O78)	249
Mrs Carol Jacob (O252)	250
Ms Pippa Bartolotti - Wales Green Party (O27)	251
Dr Catherine Linstrum (O92)	252
Mr Andrew McDermid (01336)	254
The Campaign against the Levels motorway (CALM) (6929)	256
<i>The Campaign for the Protection of Rural Wales (O144)</i>	
Mr Peter Ogden	263
Mr Victor Warren, Vice Chairman of CPRW	264
Additional Evidence of Mr Hepworth	266
Woodland Trust (O270)	270
Mr T Anderson of Pace Transportation Ltd Wales (6905)	271
Roadchef Ltd (O26)	273
Rontec Ltd (O292)	275
Mrs Ann Picton (O203)	275
Mrs Louise Davies (O6911)	276
Ms Ellen Law (O308)	277
Dr Diana Callaghan (O6919)	278
Written Statements to the Inquiry from Statutory Objectors	
Marshfield Community Council (O6902)	278
Written Objections from Statutory Undertakers	281
Statutory Written Objections from the farming community	283

Other Statutory Written Objections (non-farming)

300

Written Statements from non- statutory Objectors

The Future Generations Commissioner for Wales (O6923)	302
Federation of Small Businesses (Wales) (FSB) (O6902)	312
Gwent Ornithological Society (O297)	314
Royal Society for the Protection of Birds - RSPB (O245)	316
Ms Jenny Rathbone AM and Mr Steve Howell (O6906)	325
Mr Laurence Lowe (O154)	328
Mrs Ann Kenny (0096)	330
Councillor Brian Mills (O6907)	331
Mr Tom Chinnick (O335)	332
Mr Benjamin Potts-Johnson (O6917)	333
Mr Phil James (06920)	334
Mr John Robertson (O6914)	335
Vivien Mitchell (O142)	335
Ms Linda Guppy	336
Ms Catherine Grady (O6918)	336
Mr John Evans (O6908)	337
Other written objectors who did not submit statements	338

6. THE CASES FOR THE OBJECTORS and WG OBJECTORS

RESPONSES TO

The material points are:

Statutory Objectors who attended the Inquiry

Natural Resources Wales (NRW) (O268)

Inspector's Note:

*For ease of reference, and as discussions between WG and NRW have resolved most of the initial issues that were outstanding at the start of the Inquiry, the original objections of NRW are not included in this report. This report covers the **remaining** issues and Statements of Common Ground (SOCG) extant at the end of the Inquiry. The original*

objection and subsequent written comments are lengthy documents, the chronological list of which is outlined below:

- Letter dated 4 May 2016 – response to original ES (constitutes Objection 0268)
- Letter dated 18 October 2016 – response to September 2016 ESS (CD 11.3.73)
- Letter dated 31 January 2017 – response to December 2016 ESS (CD 11.3.72)
- Letter dated 26 September 2017 – response to August 2017 ESS (ID 130)
- Letter dated 6 December 2017 – response to October 2017 ESS (ID 164)
- Further correspondence between WG and NRW is set out in ID 063 and ID 163.
- NRW Closing is ID 244 and concluding comments are contained in IDs 233, 236 & 254

The Remaining Concerns of NRW

- 6.1 NRW accepts that the duty under Section 28G (2) of the Wildlife and Countryside Act 1981 is 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”*. It also accepts that whilst the nature of the statutory requirement under S28G is not absolute, the scale of loss of SSSI area to the scheme is unprecedented⁵ and could be contrary to statutory duties under Section 28G, Sections 6 and 7 of the Environment (Wales) Act 2016 and be in breach of paragraph 5.4.4 of Technical Advisory Note 5 (TAN5). The potential loss of 105ha of land from the SSSIs and the extent of the Glan Llyn junction is the principal remaining concern. This loss would be compounded by the fact that these particular SSSIs contain an interconnected drainage network, so that impacts are wider and more significant than those purely attributable to the quantum of loss of the SSSI land itself. The loss of land is such that WG has failed to apply the strict tests, when carrying out functions within or affecting SSSIs, to ensure that they avoid, or at least minimise, adverse effects. They have not complied with paragraph 5.4.4 of TAN5 to meet this relatively low test. Added to this is the potential for further pressures to develop within the area, should a future review of the LDP indicate the need to allocate additional employment land in the vicinity of the Glan Llyn junction (PIQ05, PIQ98).
- 6.2 Construction of the scheme would result in the infilling or culverting of 2,755m of reen and 9,373m of field ditch. NRW accepts that these would be replaced by a total of 2,826m of new reen and 10,594m of new field ditch (SSSI SOCG 2.3.6). Even with this there would be a resulting loss of 1,635 m of reen on the Caldicot Level, with 310 m of replacement and the loss of 1,067 m of reen on the Wentlooge Level, but with 2,583 m of

⁵ See also paragraph 2.3.2 of ID 61 revised.

replacement. This means there would be an imbalance between replacement watercourses east and west of the River Usk relative to the current situation. The replacement reens and ditches would inevitably take some time to mature and perform the full range of ecological functions. Examples of reen replacement (good and bad) were provided to the Inquiry. The extent of this loss and the timescales for construction of the scheme are such that NRW cannot have confidence that the reduced available habitat would be able to support the full range of SSSI features (ID61).

WG response

Inspector's Note

WG's full interpretation of the test under Section 28G is explained in (the Legal) Section 2 of this report, with reference to relevant caselaw.

- 6.3 NRW's quotation of Section 28G is agreed but the loss of land alone cannot be the determining issue. Such an approach is doubly wrong in that it does not accord with the law, and NRW's evidence to the Inquiry was that scale of loss alone cannot answer the question of acceptability. Whether the steps taken are reasonable is a matter for the judgement of the decision-maker. In this case, the evidence shows that the majority of the land in the SSSIs, far from exhibiting notification features, is very ordinary and some parts contribute negatively to the condition of the important features (the reens), as a result of farming practices and/or existing industrial pollution (ID49 App A).
- 6.4 The scheme would not set a precedent for further development because of its unique nature, and the proposals for the nearby Solar Farm DNS application and other such issues are completely independent of the proposed motorway.
- 6.5 WG's approach to mitigation is set out in detail in WG's response to the objection of Gwent Wildlife Trust (GWT). It has led to the choice of route as far north as practicable and the scheme design was deliberate to minimise impact on the SSSIs. At the Inquiry, NRW cited only one example of excessive land-take – the Glan Llyn junction. The land-take for the junction would be only 4.3 ha and not 12 ha as claimed by NRW who, on reflection at the Inquiry accepted the error. The need for this strategic junction to serve a major and approved development area of Newport was not challenged.
- 6.6 Of significance, NRW has agreed the SSSI mitigation strategy and accepted that there would not be indirect effects on other SSSIs because of WG proposals to manage highway drainage to ensure that water quality across the Gwent Levels would be maintained. There is complete agreement in respect of drainage and water quality including monitoring (ID/53, ID/54, PIQ05, PIQ06).
- 6.7 The long-term funding of water management and water quality systems in perpetuity has been resolved to the satisfaction of NRW who confirmed

to the Inquiry that the reens and ditch design proposals are the best they could possibly be, which, in WG's view, certainly equates to the *reasonable steps* required by S.28G. The only residual concern was the timescale for new reens to support SSSI features. This has been resolved by the confirmation of the transfer of material from the existing to the new reens and the agreement that natural remedial measures are available to tackle any algal bloom issues.

- 6.8 The concern about the imbalance of replacement reens between the Caldicot and Wentlooge Levels was advanced late in the day and was not regarded as a strong point. The Ellen Reen diversion would add 619m of replacement reen in the Caldicot Levels but had not been counted in the initial figures⁶ and ditches could be cleaned out and widened to provide reen like characteristics*. Environmental commitment 199 states that WG will work with NRW to increase the length of replacement reens on the Caldicot levels. In the absence of any ecological explanation of any harm that would result, this cannot be treated as an objection of real significance (PIQ36, PIQ69).

Inspector's Note

*These ideas were regarded favourably at the time, but possibly due to the witness indisposition (owing to a serious non-inquiry related accident) they were not taken further by NRW.

The evidence of Mr Gary Purnell on the subject of Flooding

- 6.9 The proposed embankments across the Gwent Levels could compromise the dispersal of potential tidal flooding but that could be remedied by improvements to existing sea defences, which would be necessary anyway beyond 2030. Without that the scheme would increase the risk at some properties. Public investment in enhanced flood defences may take place, but that is not a sufficient strong commitment.
- 6.10 Without the sea flood defence scheme and with current climate change predictions, the scheme could flood by up to 3.59 m deep in a 1 in 1,000-year event. That would be contrary to the requirements of TAN 15. The methodology applied by WG through the DMRB to assess detriment is far more lenient compared to the requirements used by NRW for new development. The scheme would also be contrary to Section 7 and Appendix A of TAN15, which defines sustainable development (CD17.2.2).

WG response

- 6.11 The scheme needs to cross the recognised flood risk area because it is the best option for addressing the problems associated with the M4. PPW recognises that for essential infrastructure there will be situations where exceptions to the overarching policy of avoiding such areas may be permitted. The Government is committed to the "Hold the Line" policy in

⁶ See paragraphs 2.3.10 & 11 of ID 61 revised

terms of flooding at Newport, thereby permitting the scheme to proceed as an exception to the normal policy requirement (CD5.1.1, PIQ70).

Statements of Common Ground (SOCG)

Inspector's Note

Discussions between NRW and WG were ongoing throughout the PI and culminated in a series of Statements of Common Ground. These SOCG set out the matters that are agreed and not agreed between the two parties and are reported here as they have a direct bearing on the objections received. SOCG in relation to cultural heritage and landscape matters are reported as part of the evidence of WG (Messrs Rawlings and Rowson) in Section 4 above.

Water Quality SOCG (ID 53 revised)

- 6.12 Baseline surveys of SSSI water quality have been undertaken in line with NRW guidance and revealed a current high concentration of nutrients (PIQ36).
- 6.13 The agreed measures to control construction drainage, run-off and incidents are established and it is agreed that the potential of construction spillage is capable of being managed to avoid water pollution.
- 6.14 The scheme would deploy a sustainable carriageway drainage, with the use of longitudinal grass-lined channels. This system would improve the quality of the run-off from the motorway in advance of it entering the water treatment areas (WTAs). The design of the WTAs represents a much higher standard of treatment than comparable road schemes in Wales and would treat run-off from the motorway to higher standards than that usually required for trunk roads. The system would discharge at a rate and quality compatible with the characteristics of the SSSIs. Discharges direct to the tidal Rivers Usk and Ebbw have lesser requirements for attenuation and treatment.
- 6.15 Pollution spillage would be contained by the system and the use of rock salt would be replaced by alternatives from March to September to avoid unacceptable chloride concentrations during the drier months. A surface water monitoring protocol covering data collection of the treated run-off, with a proactive mechanism of control levels that would trigger maintenance or remedial action well before a standard is breached would be used. A comprehensive maintenance and pollution management plan would be deployed (ID54).
- 6.16 The proposal to replace reens and ditches at a ratio of 1:1 would be compatible with the complex hydrology of the Levels.

Nationally Designated Sites (SSSIs) SOCG (ID 61-revised)

- 6.17 The SSSI mitigation strategy has been agreed with NRW. Taking into account that additional mitigation and enhancement would start before construction and that improvements in the ecological interest of the grasslands would be effective within a few years (medium term), the

magnitude of impact is assessed as Moderate Adverse. The significance of effect is Moderate or Large in the short term. In the medium to long-term the magnitude of impact would reduce to Minor Adverse and the significance of effect would be Slight or Moderate.

- 6.18 Grazing marsh mitigation criteria have been agreed for restoring arable land to grazing marsh and grassland enhancement. The ratio of 1:1 for arable reversion is appropriate as arable land is not grazing marsh; and 1.5:1 for grassland enhancement recognises that the land already has some biodiversity value. The areas of land at Tatton Farm, Maerdy Farm and Caldicot Moor are appropriate in the light of the predicted impacts of the Scheme and would provide adequate and extensive SSSI mitigation areas.
- 6.19 The considerable experience of NRW would be used to assist the detailed design of the replacement reens in order to maximise the chances of success. The increased width of replacement reens would facilitate variations in width and marginal features that would be of considerable ecological value. Nevertheless, NRW considers that there remains the possibility that the reen mitigation proposals would not support the SSSI features, at least initially.

Internationally Designated Sites SOCG (ID 251)

- 6.20 A screening exercise concluded that Likely Significant Effects (LSEs) could not be ruled out for the European Sites:
- River Usk SAC;
 - Severn Estuary SAC, SPA & Ramsar Site, and
 - Wye Valley and Forest of Dean Bat Sites SAC (ID157).
- 6.21 Therefore, a Statement to Inform an Appropriate Assessment (SIAA), prepared in accordance with the DMRB was published in March 2016 to accompany the draft Schemes and Orders. An updated SIAA⁷ was published in August 2017 to include wintering bird survey results and further information on bats and otters as requested by NRW (CD2.3.4, ID214).
- 6.22 The relevant features of each site are considered in the SIAA which itemised the proposed appropriate mitigation measures. It is agreed that adverse effects on the integrity of the European Sites in respect of migratory fish and wintering birds or waterfowl are not likely to occur. A similar conclusion was reached for Lesser and Greater Horseshoe Bats (both features of the above Bat Sites SAC) because a limited number were recorded in the scheme survey area that may be from the distant SAC

⁷ 2.8.17 & ID 107 – all paragraphs referred to in the SOCG relate to the updated SIAA.

(ID56, ID56a, ID251, ID244).

- 6.23 The SIAA has taken a precautionary approach in relation to otters by assuming that otters associated with the River Usk SAC could utilise parts of the Gwent Levels. With mitigation in place and recognising the small numbers of local otters, no adverse effects on the integrity of the River Usk SAC are predicted (ID214, ID236).
- 6.24 A SIAA addendum was published in August 2017 and concluded beyond reasonable scientific doubt, that the proposed works in Newport docks would not adversely affect the integrity of the River Usk SAC or affect the overall assessment of the scheme. There would be no adverse effect on the integrity of the relevant European Sites, either alone or in combination with other plans and projects (CD2.8.9). NRW raised no objection on these grounds and is content with the approach (ID154, ID236, ID251, ID244).
- 6.25 NRW raised concerns about the lack of detail for the dock's re-location proposals in terms of their effect on otters. It was agreed that these works would require a separate consent from the Local Planning Authority (Newport City Council) and NRW would be consulted for its opinion on whether there would be LSEs on otters. NRW has confirmed that these matters can be addressed as part of the consenting process under the Habitats Regulations 2017, following which it removed its holding objection (ID236).
- 6.26 The SIAA also considered the in-combination effects of other plans and projects on the relevant features of the above European Sites which NRW agreed as appropriate. NRW also agrees with the conclusion that adverse effects on the integrity of the above European Sites are not predicted as a result of the scheme, either alone or in combination with other plans and projects, taking account of mitigation and the commitments within the Register of Environmental Commitments.

Protected Species SOCG (ID 105)

- 6.27 In order for NRW to grant a European Protected Species (EPS) Licence, three tests must be satisfied:
- the works to be authorised are for the purposes of preserving public health or safety, or for imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance to the environment;
 - there is no satisfactory alternative, and
 - the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 6.28 The first two tests would have to be considered in the light of the

conclusions and reasoning following the Inquiry and the Ministers' decision. The third test relies on assessing method statements submitted to support applications for the relevant licences. To this end, WG have prepared and consulted NRW on draft Mitigation Strategies to provide evidence to satisfy the third test. Dormouse and Bats species are the subject of separate SOCG. Where appropriate there are relevant environmental commitments to provide a mitigation/method statement and a draft EPS licence application (ID87, ID154, ID233).

The effects on individual species

Great Crested Newt

- 6.29 NRW is content that detailed matters could be agreed during the preparation of the final mitigation strategy, in accordance with Commitment 181. The measures set out in the final strategy, informed by the 2017 surveys, in combination with the licence conditions, should be sufficient to avoid any detrimental effect to the population of the Great Crested Newt at a favourable conservation status in the local, regional and national context.

Otter

- 6.30 The effects on otters have been appropriately assessed in the ES for Environmental Impact Assessment purposes. The 2017 survey work further informed the preparation of an Otter Mitigation Strategy and there is no evidence to suggest that an EPS licence would be required. NRW issued a holding objection in respect of the Newport Docks internal relocation works and the potential effect on the European otter as a qualifying feature of the River Usk SAC in terms of the retention of areas of suitable habitat between the River Usk and the proposed development areas. Approval under the Habitats Regulations would be required to exercise the relevant permitted development rights in this regard and additional information would be required by NRW, as noted above under ID 251.

Water Vole

- 6.31 The baseline data and assessment of effects provided in the ES is appropriate for Environmental Impact Assessment purposes. A draft water vole mitigation strategy has been submitted to NRW which is content that its comments can be addressed in the final version of the Mitigation Strategy or through the Environmental Commitments. That should ensure that there would be no adverse effects on the species.

Badgers and Reptiles

- 6.32 The baseline data provided in the ES is appropriate for Environmental Impact Assessment purposes. A Mitigation Strategy/ Method Statements would be prepared in consultation with NRW to support the necessary application for a Protection of Badgers Act licence.

Wintering Birds

- 6.33 The baseline data and assessment of effects provided in the ES and ESS 1 is appropriate for Environmental Impact Assessment purposes. The data gathered will be used to revise the SIAA report with respect to the Severn Estuary SPA and Ramsar Site.

Breeding Birds

- 6.34 The baseline data and assessment of effects provided in the ES and ES Supplements is appropriate for Environmental Impact Assessment purposes. Targeted breeding bird surveys of Cetti's warbler, barn owl, lapwing and common crane and general breeding bird surveys in certain areas were undertaken in 2017 to inform the Bird Protection and Mitigation Plan to be agreed with NRW prior to construction (ID187a).
- 6.35 The protection and mitigation measures to be employed would include pre-construction surveys, prevention measures, monitoring and phasing of works, all overseen by the Ecological Clerk of Works.
- 6.36 Mitigation for Cetti's Warbler involves the creation, management and enhancement of suitable habitat. Existing habitat of benefit would be protected and enhanced as far as practical and habitat would be created at the Caldicot Moor SSSI mitigation area and retained as far as consistent with measures for enhancing reens and ditches. Habitat creation at the Tata site would also benefit Cetti's warbler and be consistent with the common crane mitigation. Mitigation for barn owl would be in the form of the provision of nest boxes at least 3 km from the motorway, in collaboration with RSPB (ID187a).
- 6.37 Mitigation for lapwing would involve habitat creation at Maerdy Farm and Caldicot Moor and that would benefit other waders and ground-nesting birds. These sites would also be used to manage and create habitat to benefit the shrill carder bee and other bumblebees.
- 6.38 The common crane, an extremely rare protected species would be affected because the proposed motorway would run close to the existing nesting site and would separate the nest site from foraging areas. The specification for crane mitigation provided by the RSPB has been used to seek appropriate sites elsewhere and a detailed agreement has been signed with Tata for the occupation and use of suitable land. Another potential site is being considered at Newport Wetlands reserve (ID187a, ID238).

Bats SOCG (ID/104)

- 6.39 The baseline data provided in the ES and ESSs is appropriate for Environmental Impact Assessment purposes. All species of bats are European protected species and a licence would be required for works affecting roosts. A draft Mitigation Strategy/ Method Statement has been prepared in consultation with NRW who, on the basis of the information supplied, does not hold the view that the grant of a licence in respect of

bat roosts would be unlikely.

- 6.40 The scheme corridor is assessed to be of regional value for bats and NRW maintains its objection on the basis of severance, habitat fragmentation and potential mortality associated with the construction and operation of the road. Roads can have detrimental effects on bats leading to a reduction in abundance and species diversity. Whilst all reasonable steps to mitigate the potential adverse effects have been taken, because of the need to keep the road low in the landscape and minimise land-take within the SSSIs, not all adverse effects could be prevented and residual severance and effects of Moderate Adverse significance would remain in the long-term (ID51).
- 6.41 Planting, set back from the road, would be used to guide bats to crossings – culverts, underpasses and overbridges, subject to NRW assessing hedgerow planting plans to avoid unnecessary detrimental effects on the SSSIs (ID56, ID56a).
- 6.42 The land take for the motorway would have Moderate Adverse significant effects in the short and medium term. Construction would have Moderate Adverse significant effects in the short and medium term, and there would be moderate adverse significant effects in the long-term from the operation of the motorway.

Dormouse SOCG (ID/154)

- 6.43 The baseline provided in the ES (and Supplements) is appropriate for Environmental Impact Assessment purposes. Further survey work was undertaken in 2017 and more is planned for 2018 (ID154).
- 6.44 The Mitigation Strategy was developed in consultation with NRW and provides the basis for method statements to be submitted in support of the EPS Licence application. On the basis of the information supplied, NRW does not hold the view that the grant of a licence in respect of Dormouse would be unlikely. WG has confirmed its commitment to implementing the strategy and addressing the monitoring and maintenance issues sufficient to enable NRW to withdraw its objection (ID87).
- 6.45 It is accepted that there would be major adverse effects on the dormouse population near Castleton interchange and elsewhere from the clearance of habitat, trapping and/or displacing dormice, as well as disturbance to animals in retained adjacent habitat. The strategy contains options for displacement, relocation and translocation of dormice from areas of clearance but translocation of dormice would be a last resort. The final choice of option for each location would be as agreed with NRW and should matters move forward (ID87, ID154).
- 6.46 The potential receptor site at Coed Mawr is owned by NRW some distance from the scheme and is available. This could be used as part of a package of measures, subject to further investigation and suitable long-term habitat management. Other measures include improving adjacent habitat

next to areas of habitat loss, displacement into these areas and if necessary, maintaining a captive population. The enhancement of habitat would create an additional dormouse resource and there is potential for a habitat-link to be provided on Tata land to avoid isolation of dormice to the south of the road (ID154).

6.47 New commitments would address the issues of landowner agreement and management of dormouse receptor sites, the management of dormouse habitat in the wider countryside and population reinforcement within 5 years if there is evidence from monitoring that the planting is not being colonised sufficiently (ID09f). Discussions around the detail of the proposed mitigation works and the timing of their implementation have continued and ID 233 deals with the details which have led NRW to confirm that all issues raised by them about dormice have been resolved.

Wentlooge Community Council (06904)

The evidence of Mr Richard Dean

6.48 In the Council's view, the carbon generating scheme would:

- be an inappropriate 60ha development across the 1,347ha of the Peterstone and St Brides SSSIs*;
- be a threat to a Registered Landscape of Outstanding Historic Significance, an iconic wetland, an internationally important RAMSAR site and the gateway to the Wales coastal path;
- cause irreplaceable loss of habitat and severance of a large portion of the SSSI to the north of the scheme;
- create an invasion of noise and air pollution that would affect both the natural environment and the population of Duffryn and Tredegar Park;
- cause surface water run-off to lower the quality of water in the local watercourses, and
- bring development pressure to the Gwent Levels.

6.49 The estimated cost of the scheme is probably too low, because of proven difficult ground conditions, which may not have been investigated sufficiently.

6.50 The proposed motorway would boost the South Wales economy, but a sustainable transport strategy of upgrading the existing M4 by the construction of new hard shoulders, improved alignment, reduced gradients and the removal of local junctions serving traffic from the north of Newport would achieve that. Alternative solutions could be based on:

- constructing a new tunnel alongside Brynglas tunnels, and

- a version of the Blue Route.

WG response

- 6.51 The ES acknowledges that the scheme, cutting through the Wentlooge Levels would have a permanent large adverse effect on the landscape but that would be outweighed by the benefits that would accrue from it, and it has been shown to be preferable to all alternatives or various combinations of them. About 35 ha of land would be taken from the St Brides SSSI out of a total area of 1,306 ha. That represents about 2.7% of the area (PIQ/114).
- 6.52 The scheme would sever 159ha of the St Brides SSSI but a larger area has been severed by the London to South Wales main railway line for decades and that has not resulted in any noticeable adverse effects (PIQ/114).
- 6.53 The capital carbon resulting from construction would be neutralised by the savings which would arise from a reduction in emissions over time, and, overall, the population of Newport would benefit from the reduction in air pollution and road traffic noise. Over 2 km of 2m high noise barrier would be erected near Duffryn, protecting 180 properties.
- 6.54 No development on the Levels is earmarked in the Newport LDP and any proposed would be subject to planning control and national planning policy.
- 6.55 A sophisticated drainage design would be constructed to remove undiluted potential pollutants and that would also deal with current untreated M4 run-off, thereby enhancing water quality in parts of the local reen network, where the current water quality is poor. This has been agreed with NRW, as the custodians of water quality in the reen network.
- 6.56 The cost estimate of the scheme is sound and includes an allowance for risk and contingencies. Extensive and detailed ground investigations, on which an appropriate design has been based, have been undertaken since 1997.

The Rogiet Community Council (O206)

The evidence of Councillors Robert Stallard and F Oliver-Holland

- 6.57 The proposed illogically complex gyratory at J23a would have a severe effect on Rogiet, the Llanfihangel Rogiet Conservation Area, and on the countryside, landscape and farms. It could precipitate an eastward move of the Magor motorway services. What is now a rural historical location would quickly become pressurised to develop into an urbanised business or development park. The complexities of the proposed junction would be expensive, mislead drivers and would be problematic for those not associated with the area. The already busy B4245 would become overloaded.

- 6.58 The Council, and most locals, support The Green Route - Alternative 3, but oppose most other alternative suggestions.

WG response

- 6.59 The scheme would have adverse impacts in the Rogiet area but there would be advantages in removing traffic from the B4245.

The Individual Statutory Objectors

Associated British Ports - Newport Docks (O031)

Inspector's Note

ABP submitted formal objections to the draft Schemes and Orders and as landowner and statutory authority for Newport Docks, also formally objected to the CPO of land forming part of its statutory undertaking at the port. At the same time, ABP objected by written representations under Section 16 of the Acquisition of Land Act 1981 to the Secretary of State for Transport and the Minister for Economy and Transport at WG on the grounds that the proposed CPO would cause serious detriment to the Port of Newport's statutory undertaking.

Following intense discussions with WG, a legally binding agreement was made and sealed as the basis for satisfying the objection. That led to ABP's representatives confirming on 2 February 2018 that they would withdraw the objections to the Secretary of State for Transport and to Welsh Ministers. The agreement encapsulated the carrying out of substantial accommodation works within Newport Docks as a satisfactory way of addressing the serious detriment to the undertaking of the Port of Newport which would otherwise have occurred and bridge protection measures (ID228).

For ease of Ministers' reference, a detailed summary of the agreed accommodation works and other safety works is set out immediately below.

ABP and WG's agreed position

- 6.60 WG would provide the following works to address the serious detriment, which it accepts would have been caused to the Docks:
- the phased creation of approximately 303m of new quay on the north side of the South Dock, with the refurbishment of 250 m of quay on the south side of the South Dock at the eastern end of the coal terminal, both to compensate for quayside which would become inaccessible in the North Dock for large vessels;
 - the provision of a swing-bridge to facilitate the crossing of mobile harbour cranes, other port equipment and HGVs over the extended Junction Cut from west to east and vice versa in the South Dock, with an associated new road to connect existing port roads, to negate the crane movement barrier-effect that would be created by the proposed viaduct, and
 - the package of accommodation works, including preparation of areas of land and provision of premises to facilitate the relocation of ABP, tenants and occupiers of the Port who would be affected temporarily and permanently by the scheme, including site

preparation, new buildings, hardstanding and infrastructure.

6.61 Legal agreements guaranteeing these works were signed on 2 February 2018 and included the following:

- the provision of the port mitigation measures detailed above
- a deed of indemnity and insurance from WG to ABP, recognising that the construction, operation and maintenance and use of the motorway and the bridge through Newport Docks may give rise to new risks to operations in the port and that certain risks may exist to users of the motorway as a result of the operation of and activities at the port, and
- an access agreement granting WG rights of access to the port to carry out various activities before, during and after construction of the motorway, for example preconstruction ground investigations, construction of the motorway bridge and junction and post-construction bridge condition monitoring.

6.62 WG has agreed that the CPO of land and rights within the statutory estate would not be brought into effect in respect of ABP's interests but instead WG would lease or purchase, as appropriate, the land for the construction and future operation of the motorway. WG may acquire compulsorily the leasehold interest of a tenant in respect of which it has not been possible to negotiate a satisfactory relocation agreement by the time the land occupied by the tenant would be required for the construction of the motorway.

6.63 Based on these agreements above ABP withdraw their objection to the scheme, their request to the Secretary of State for Transport for a dedicated Public Inquiry and alternative routes 13, 14 and 17 of the *Objectors Suggested Alternative Routes report*, recognising that alternative routes 15 and 16 had been withdrawn by ABP in earlier correspondence.

6.64 The formal agreements between ABP and WG do not require any modification to the Schemes and Orders to be made, save only in respect of the width of the channel through the Junction Cut, thereby allowing WG to undertake a lesser "narrowing" than that to 11 metres, set out in the Order (resulting in a greater width remaining). If, as anticipated, the appropriate width of the narrowing is determined at 13.5 m between fenders, it would be necessary for the Orders to be modified to reflect this, as they currently proceed on the basis of a width between fenders of 11.0 m. Both parties would agree such a modification.

6.65 It should be noted that, if the scheme proceeds, WG accepts that it would be legally bound to provide a package of measures -in addition to the above, which comprise the following works of mitigation, all in accordance with agreed locations and a timing of provision program:

- the provision of various common user cargo storage areas to replace

those lost to the motorway;

- the provision of new ABP central workshops, stores and a medical centre;
- the provision of new quay works and associated dredging to replace the 1,000m of berthing in the North Dock, (which would be restricted by the height of the proposed motorway bridge), with the first 150m provided before the narrowing of the Junction Cut takes place and the remaining 153m provided no later than three years after the date of narrowing the access between the fenders;
- the undertaking of the necessary dredging in front of the South Dock berths subject to obtaining the necessary Marine Licence from NRW. The intention would be to dispose of any dredged arisings at sea, at a licensed marine disposal ground, in the same way as material from the regular maintenance campaigns within the South Dock are currently disposed of;
- quay resurfacing works, affecting 250 m of quay apron on the south side of the South Dock in accordance with the detailed agreement;
- marine safety build-outs to the south-west and south-east of the Junction Cut. These would each consist of an area of newly reclaimed land enclosed by a piled dock wall;
- the relocation of tug facilities, initially in the Middle Quay area of the South Dock and then permanently in the new South West Marine safety build-out, once completed;
- the erection of a South Dock ship height detection system;
- the provision of two mobile harbour cranes, together with a commuted sum to reflect future repair and replacement of them;
- the relocation of the western port security gate to facilitate construction of the new motorway access road;
- the relocation of tenants who would be impacted by the construction and operation of the motorway;
- the reconfiguration of some existing tenanted premises, and
- the partial demolition of 9 and 10 sheds (two large sheds known as Nos. 9 and 10), and associated works and the provision of utilities infrastructure comprising access roads, electricity water and telecommunications supplies.

Consents and Approvals

6.66 The agreed new facilities would be provided before the construction of the motorway requires their removal. The package of mitigation

measures would require a series of land and marine-based approvals and consents and the package would be subject to an Environmental Impact Assessment. These would be as follows:

- approval for the relevant elements of the mitigation package would be obtained by reliance upon the deemed approval provisions granted by Part 11 and Part 13 of the Town & Country Planning General Development Order 1995 (as amended). These permits can be relied upon either by ABP (by virtue of the enabling Act of Parliament, which originally authorised the construction of various parts of Newport Docks) or by WG in connection with, or incidental to, the exercise of its functions under the Highways Act 1980;
- Part 11 rights would be relied upon in respect of all other aspects of the package of measures which would require planning permission and which are not already subject to the Highway Schemes and associated Orders;
- the prior approval of the Newport City Council would be necessary in respect of aspects of the package which rely on Part 11 rights. However, such prior approval would be limited in scope and is in place to control the design and external appearance of specific elements of development. Such prior approval would be made in the context of policy EMT2 and the adopted Newport LDP that supports development within Newport docks which is complementary to and does not hinder the operational use of the Port;
- the use of Part 11 and Part 13 rights would be subject to the provision of the Conservation of Habitats and Species Regulations 2017 which would mean that approval for the development could not be given if it is concluded that the development would adversely affect the integrity of the European site. The addendum SIAA concludes that there would be no adverse effect of the proposed works and development in the docks on the integrity of the relevant European sites, either alone or in combination with other plans or projects. Nor would the proposals affect the overall assessment of the scheme, which itself would have no adverse effect on the integrity of the relevant European sites. Therefore, there would be no reason to conclude that any such approval from Newport City Council would be withheld;
- Origin Fertilisers is one of the existing tenants that would have to be relocated and consequently a New Hazardous Substances Consent would be required. If approved, this consent would be issued by Newport City Council in its capacity as the Hazardous Substances Authority who would have to consult with the Health and Safety Executive (HSE) which has already signalled its approval (ID232);
- a new environmental permit would be needed in respect of the

Sims Metals Group, and

- those aspects of the works located within the marine environment would require approval from NRW via a marine licence or licences, in accordance with Section 69 of the Marine and Coastal Access Act 2009. ABP does not believe that there are any reasons why the relevant marine licence application should not be forthcoming from NRW.

6.67 ABP does not foresee any impediments to the issue of any required approvals principally because development which is complementary to and does not hinder the operational use of the Port is supported through both local and national policy. ABP and WG have entered into an agreement on compensation payments on the basis of equivalents such that the port would neither be better nor worse off as a result of the construction and the operation of the proposed motorway.

Safety Issues

6.68 ABP is satisfied with the proposals emanating from WG which would be necessary to address the principal concerns over the compatibility of the proposed motorway bridge with marine safety. These proposals would result in:

- the construction of two marine safety build-outs immediately to the south of the Junction Cut which would encroach about 50 m into the Middle Quay area of the South Dock and thereby remove the possibility of a vessel colliding with the proposed motorway bridge;
- the narrowing of the passage through the Junction Cut to the North Dock from its current 19 m width water level to a lesser width (13.5 m) in order to restrict the beam of vessels able to access the North Dock and hence the height of such vessels because the beam (or width) of a vessel is directly related to the height of it. This element of the mitigation package is still subject to risk assessment by ABP but the narrowing of the Junction Cut to 13.5 m would reduce the residual risk of a non-superstructure strike (from a mast) to one which could be reasonably mitigated by the use of an electronic magic-eye and the application of procedures by ABP. The magic eye would consist of two "ship-height" detectors both located at the lock entrance to Newport Docks and would be designed to detect an over-height vessel as it first enters Newport Docks. The operation of the magic eye would be by ABP personnel and the detection beam would be set to ensure that the vessel, when loaded in the North Dock, would not arise in the water to such an extent as to strike the underside of the bridge. The magic eye would be set to provide a 2 m safety margin as well. That would guarantee against human and measurement errors, for example not filling ballast tanks fully after discharging cargo in the North Dock;
- corresponding safety measures would be undertaken in respect of

the motorway above the docks through continuous CCTV coverage, the provision of a variable speed signage and overhead gantries and the development of communications protocols between ABP and the trunk road agency who would be responsible for the operation of the motorway;

- it is noted that the bridge design would incorporate measures to mitigate the risk of objects being dropped from the bridge onto vessels passing below;
- during construction close cooperation would be undertaken between the personnel of ABP and those of the contractor to ensure that shipping is not trapped in the North Dock during periods of temporary closure and that alternative berthing arrangements would be made. Full details of all procedures and the consents required for the construction of the scheme are set out in ID196.

Tenants of ABP at Newport Docks (Written Statements recorded here for continuity)

Saint-Gobain/Jewson (International Timber) (O313)

- 6.69 WG has not entered into meaningful discussion with the company which could lead to the withdrawal of the objection. The construction of the scheme would prevent or significantly impede access to Newport docks by shipping and would adversely affect the company.

WG response

- 6.70 It is recognised that the scheme would have a significant effect on the operations of the company and WG would continue to work with ABP and its tenant in order to provide a solution which would enable the company to operate efficiently within Newport Docks.

CJN Engineering Ltd (O312)

- 6.71 The scheme would go directly through the workshop, offices and storage areas used by the company within Newport docks and would require the business to relocate.

WG response

- 6.72 Extensive discussions have taken place with the company which would lead to the development of a package of mitigation works to address the temporary and permanent impacts that the proposed scheme would have on ABP and its clients. CJN Engineering would be relocated to the south of the South Dock on a like-for-like basis. It is recognised that the company has enjoyed a flexible approach by ABP to its use of land and it is noted that there would be other areas within the docks that may be available for letting to the company on a short or longer-term basis. That would be a matter for agreement between CJN Engineering Ltd and ABP. Liaison would continue between the parties and compensation would be

payable in appropriate circumstances.

Origin UK Operations Ltd (O291)

- 6.73 The CPO would remove the main external storage and handling area used by the company and part of the main processing and storage building. The scheme would prevent or significantly impede access to the Northern Dock by shipping so that it may no longer be possible for imports of material to continue. The construction of the scheme would result in the removal of the Hazardous Substances Consent, which the business requires to operate, and given the major constraints and threats to its business, there would be no other option than to relocate.

WG response to Origin UK Operations Ltd

- 6.74 WG recognises that the scheme would adversely affect the operations of the company and that its relocation would not be straightforward without securing a fresh Hazardous Substances Consent from the Health and Safety Executive and thereafter planning permission for the relocation from Newport City Council. Both the necessary Consent and subsequent planning permission have been secured and agreement has been reached with ABP for the satisfactory relocation of the company which should enable business to continue within Newport Docks, in an area unimpeded by the scheme.

T U Agencies Ltd (O147)

- 6.75 The scheme would result in a restriction on this because many of the vessels that currently use the facilities would be prevented from doing so. Future development of the North Dock would be unlikely and the scheme would have an adverse impact on the future development prospects for the business. The route of the proposed motorway would prevent the transfer of harbour mobile cranes from the south side of the South Dock to the north side of the South Dock and North Dock.

WG response

- 6.76 The scheme would have a substantially positive impact on the economy of South Wales although it is accepted that the scheme would partially sever access to the North Dock, with 54% of vessel visits to the North Dock being impeded following the narrowing of the junction cut to 13.5 m. To offset that WG would fund two mobile cranes, a swing-bridge over the Junction Cut and engineer improvements and extensions to the quayside in the South Dock.
- 6.77 The proposed mitigation measures would place Newport docks in a better position to expand its future capacity in the event of its master plan being advanced. That would facilitate future investment and expansion. The detriment to the company's business must therefore be balanced against the wider social economic and environmental benefits that the scheme would bring.

Ronnie S Evans-Bulk Hauliers UK and Europe (O316)

- 6.78 The scheme would go directly through the yard within Newport Docks and any relocation would result in significant costs. If the business was relocated outside the area of the docks an application would need to be made to the Traffic Commissioner for another operating centre.

WG response

- 6.79 WG held discussions with ABP and Ronnie S Evans to identify a suitable location for the business within Newport Docks. Whilst there has been some frustration in agreeing matters with the tenant of ABP, it has been agreed with ABP that a relocated area to the south of South Dock on a like-for-like basis could be found for Ronnie S Evans and that some minor modifications to the earmarked site could be undertaken to make its shape more acceptable. If there are any additional operating costs arising from the use of the proposed site that may attract compensation. It is accepted that Ronnie S Evans does some work with Sims Metal and should a different relocated area closer to Sims Metals be found then that would be of no concern to WG.

The Port Security Authority (O95)

- 6.80 The initial concerns of the Authority were satisfied by WG.

Inspector's note.

An agreement between the parties was reached and sealed within the 21 days grace granted by me beyond the notional close of the Inquiry and all appropriate papers were forwarded to the Program Officer for onward transmission by that date. The objection was withdrawn.

Mr C W Rabbitt - Daffodil Lodge (O209)

- 6.81 During the construction of the scheme and the temporary closure of Knollbury Lane, access to the property would be difficult, particularly for commercial vehicles which would need to be diverted to use the lane to the north of the property. That would adversely affect the business at the Knollbury Business Park. Monmouthshire County Council oppose the creation of passing places along the northern lane and that could cause drivers to reverse over long lengths. There is no apparent reason for the inclusion of CPO plot 16/9a (PIQ/125A, ID86).

WG Response

- 6.82 Access to the property would be maintained throughout the works with only a 70 m diversion needed. Knollbury Lane would need to be closed for about a year but access for a 10 m long rigid vehicle would remain open via the northern lane which would be improved with passing places. CPO plot 16/9a would be required for construction purposes, after which it would be restored. Compensation would be considered for any remaining adverse effects (PIQ/125a, ID86).

Marshalls Mono Ltd (O329)

- 6.83 The Newport Plant of Marshalls, the U.K.'s leading manufacturer of superior natural stone, is established on 30 acres of freehold and leasehold land and would be directly in the line of the scheme. This site operates as a major distribution hub for products throughout Wales and south-west England on a 24 hour per day, 5 days a week basis, working 3 shifts each day, and supplies projects over a 40-mile radius from Newport.
- 6.84 There is approximately 25 acres of level hardstanding at the Newport site, which benefits from ready access to a dock and railhead and its aggregates are delivered from a nearby jetty located on the eastern bank of the River Usk but owned by a different company. About 62 members of staff are employed at the site and its operations support other regional businesses thereby being intrinsic to the local economy and community. Planning permission for an expansion of the site has been secured from the Newport City Council but plans have been put on hold pending the outcome of the Inquiry.
- 6.85 It would be impossible for Marshalls to operate during the long construction period and after the viaduct is erected. It would therefore be necessary for Marshalls to relocate, preferably to another South Wales site, not least because of the skill base of existing employees. It is therefore essential that WG give adequate notice of entry to the site and underwrite the acquisition and development of a suitable alternative site. The company has been frustrated by the lack of reaction from WG, which has not followed its own procedures, and by a reluctance to enter into collaborative discussions. Any replacement site would need to meet specific development criteria and WG should purchase a nearby suitable site (Freshwater) through the powers granted to it by Section 246 of the Highways Act 1980 which is applicable to such circumstances*.
- 6.86 As WG has failed to follow the requirements of the relevant CPO Circular, and having regard to the implication which would arise from the scheme on Marshalls' business, the Schemes and Orders should not be made.

**This is a legal point which has been covered at Section 2 of this report.*

WG response

- 6.87 Compensation would accrue to offset the recognised severe and lasting effect on Marshalls. The nearby, suitable and available 37-acre Queensway Meadows site, owned by WG, has been allocated for development within the Newport LDP. That could be used to re-establish Marshalls (PIQ/118).
- 6.88 It is not accepted that WG has departed from the advice set out in the relevant Circular (which is primarily aimed at local highway authorities, not the national government). For a scheme of this size the Circular would be impracticable to follow. As a matter of law, it is also not accepted that Section 246 of the Highways Act 1980 would be applicable

to a circumstance where a highway authority was intent on compulsory acquisition of land for industrial development, rather than for environmental mitigation.

- 6.89 The overall benefits that the scheme would bring would substantially outweigh the inconvenience to Marshalls Mono Ltd and, despite this disadvantage, the Schemes and Orders should be made.

The Parc Golf Club (O49)

The evidence of Mr T F Hicks and Mr B Weller

- 6.90 Mr Hicks is the owner of the 103-acre maturing 18-hole golf course of the Parc Golf Club at Coedkernew, an establishment opened in 1988, the 31-bay floodlit elongated driving range and the par-3 course immediately to the east. The facilities are well utilised for practice and teaching during the day and in the evenings throughout the year. Mr Weller is a golf course consultant.
- 6.91 An indemnification is sought from the Government against any claim resulting from a future motorway collision in which the practice ground's long-established floodlighting is cited as a contributory cause.
- 6.92 The public knowledge, that the motorway was being considered for over 22 years has resulted in a loss of membership and a detrimental economic effect on the club. The physical effects on the club would include:
- the compulsory acquisition of land along its northern periphery;
 - the potential shortening of the first hole;
 - the shortening of the practice ground from 246 yds to about 225 yds (making it less attractive for long hitters of the ball) or, as an alternative the removal of land from the par-three course would make the facilities less attractive, with adverse economic consequences;
 - the adverse effects of dust and noise during the construction period;
 - the closure during construction of the existing access from the A48 thereby imposing the burden of access to the club along very narrow country lanes, and
 - the proposed attenuation lagoon sited near the second tee which would have a significant impact on the drainage characteristics of the course.
- 6.93 Parts of the land upon which the golf course is constructed is designated

as SSSI and has to be managed with great care. The course is subject to some flooding in winter but is otherwise maintained to a very high standard. The scheme must not threaten that.

WG response

- 6.94 The golf course would be close to the proposed motorway and modifications to the original scheme have been made to reduce the impact on the course and facilities. These have yet to be accepted. The first hole would not be affected by any land acquisition.
- 6.95 Suggestions have been made as to how:
- the driving range could be shortened without compromising safety, possibly by the erection of a boundary fence;
 - the existing nine-hole par three course could be successfully converted into a six-hole course, and
 - an amended nine-hole short-course could remain by shortening the practice range.
- 6.96 It is noted that currently* the nine-hole course is not open because of health and safety concerns arising from damage to the fence which otherwise would protect golfers from stray balls from the driving range.
- 6.97 As the existing floodlighting is at right angles to the line of the proposed motorway there would be no objection to this lighting continuing. The A48 would remain open throughout the construction period but would be subject to some traffic control restraint which should not adversely affect the management of the club or access to it.

*At the time of giving evidence to the Inquiry.

Mr S C Phillips of Green Dairy Farm, Rogiet (O232)

- 6.98 Green Dairy Farm, a mixed farm of arable, dairy, beef and sheep enterprises covering 115 acres of owned land, is worked with 53 acres of tenanted grazing land and has been in the Phillips' family for generations. It is unique in that, should the scheme be approved, the farm will have been severed by three motorway developments in 50 years. It has two sets of farm buildings, which necessitate frequent movement of livestock and feed, between the one adjacent to the main farmhouse near Rogiet and the other, an outpost on the rising land north of the M48.
- 6.99 The scheme, through permanent and temporary acquisition, would take half the acreage, including land which is the most important for the dairy enterprise and would have an overwhelming impact on the farm. It is not justifiable. Alternative 19 provides for a widened motorway and should be preferred (PIQ112).
- 6.100 The main physical impacts on the efficient running of the dairy enterprise

would arise from:

- the proposed borrow pit and storage area that would take good free-draining pastureland;
- the prolonged use of the haul-road for the Ifton quarry to the east, which would sever an essential winter slurry haulage track;
- the eastern track that would fall permanently under the eastbound carriageway of the realigned M48;
- the foreseen difficulty in adequately reinstating the borrow pit area because of subterranean watercourses and water pipes that run north-south through the area;
- the adjacency of the borrow pit to the dairy unit which would make operation of the unit very difficult, and
- the interference with the hardened track that rises from the farm buildings north of the M48 to high and dry land which is so essential for the distribution of slurry in a cost-effective manner (ID151).

WG response

6.101 It is accepted that the scheme would have an overwhelming impact on the farm, reducing its operating size by half for the duration of the construction, with 36 acres acquired permanently. In total, the permanent and temporary acquisition from the holding of 161ha would be about 14%.

6.102 The temporary acquisition of land for construction and borrow pit purposes is essential in that area and could not be sensibly avoided without the scheme incurring significant additional cost. Access between the two sets of farm buildings would be maintained at all times, but there would be disruption to the farm during the construction of the realigned Bencroft Lane. Reorganisation of the deployed working practices would be required during the construction period, but the hard track which rises from the northern farm buildings should not be affected. Shared use of the eastern track would be too dangerous to contemplate during construction. This could be permanently replaced by a more direct accommodation works track.

6.103 The proposed embankments across the Gwent Levels would be built with material drawn from the borrow pit at Green Dairy Farm. Using this particular borrow pit would obviate the need to haul fill materials on the public highway network and thereby significantly reduce costs. Other sites were assessed as potential borrow pits but all were deemed unsuitable because of their location. The pit excavation would be refilled with material removed from the surcharged embankments but it is accepted that the agricultural quality of the 6.3ha of restored land would be lower than the current grade 3a. The free draining characteristics of

the existing area would probably be destroyed by the reinstatement (ID007d, ID151).

- 6.104 Alternative 19 has been dealt with in the comprehensive Scheme Alternatives brochure which is supplemented by PIQ/112.

Messrs R, G, K, M and R Jones of New Park Farm, Castleton (O227)

- 6.105 The CPO should be amended to exclude good agricultural land which has been earmarked for unjustifiable tree planting. Proposed Modification 27b is accepted, but proposed Modification 27a cannot be confirmed until the outcome of a Planning Inquiry (involving the Newport City Council) concerned with a replacement farmhouse is determined. The acceptance of the case of "discretionary purchase" of the affected parts of the holding would be satisfactory but should stone be extracted from the CPO land then, as a matter of compensation law, the market value of the extracted material should accrue to the landowner.

WG response

- 6.106 The proposed woodland planting would provide a continuation of the east – west wildlife corridor along the top of the motorway embankment and essential mitigation for the lost dormouse habitat. Following discussions, Modification 27b was proposed to reduce the area of land required for tree planting close to the farmhouse and to reduce the use of higher quality Grade 2 land. However, as agreed with NRW, the ratio of 2:1 for dormouse inhabited woodland needs to be provided to accord with the Dormouse Mitigation Strategy. The granting of planning permission for a replacement farmhouse is entirely a matter for the Local Planning Authority, although WG would have no objection to such a development. WG will further consider the case for discretionary purchase of parts of the holding (PIQ158).

Miss Alicia Park, Miss Sophie Park, Miss Verity Park, Mr Adam Park (O231)

- 6.107 The haul road would run through the middle of a productive arable field to the north of the M48 and is not needed because a public road is available. It is unclear about how compensation would be paid for use of that road. The 30 acres of land included in the CPO at Caldicot Moor would constitute a major proportion of the landholding on the Moor and would make management of it unviable.

WG response

- 6.108 The haul road was established for the construction of the Second Severn Crossing. It would be ideal for the mass-haul, by 40 tonne dump trucks, of 960,000 m³ of material from Ifton quarry, thereby removing 20,000 lorry movements on the public road network through the villages of Magor, Undy and Rogiet and along the B4245. The temporary loss of about 0.85 ha of land, together with the permanent loss of about 11.75ha at Caldicot Moor for ecological mitigation, would lead to farm

management difficulties but no permanent severance. Currently the 100ha arable holding is managed using contract. The losses would not threaten the viability of the farm, which is mainly located to the north of the A48M. Compensation would be payable for any justifiable losses.

Mr Llewellyn Morgan Pritchard of The Beeches, Undy (O235)

6.109 The effect on the established Beeches Caravan Park, which would be left on an island during construction, adjacent to an area proposed to be used for stone extraction and soil storage, would be such as to prevent enjoyment of any residency at the caravan park. During the construction period, it would be impossible to move caravans on and off site.

6.110 The loss of land included in the CPO would have a severe effect on the viability of the agricultural holding. It would be completely impracticable to continue to live and work at the property during and after construction but there is no desire to leave the property which has been the family home for over 100 years.

WG response

6.111 About 5.1 acres (2ha) of land would be acquired by the CPO, including a small portion for essential maintenance and mitigation and a further 5 acres would be required on a temporary basis, including 0.2 acres (0.1ha) required for a permanent easement. The total land holding is about 42 acres (17ha). The temporary acquisition would be required to store topsoil material during construction but that land would be appropriately restored afterwards and returned to the holding at the earliest possible time. A new permanent access would be provided – labelled as 16/6a on SRO Plan 16 in substitution for the existing access which would need to be stopped up.

6.112 During the construction period regular liaison would be maintained with Mr Prichard to ensure that the movement of caravans on to and off the site could continue in a practical way and to advise Mr Pritchard of impending planned work in the area. WG accepts that the effect of construction on the property and its management would be appreciable in respect of the agricultural holding, the hiring out of military equipment and the management of the caravans. Continual dialogue should mitigate the concerns as much as practicable and compensation could be payable in accordance with the Land Compensation Act 1973 for unavoidable losses (ID007d, ID151).

The Gwent Wildlife Trust (O270)

Inspector's Note.

The Trust, a statutory objector, fielded a large number of witnesses, spread-eagled over many months of the Inquiry and covering a diversity of subjects, in addition to submitting a number of written statements on additional subject matter. It was represented by a number of Counsel. For convenience, I have reported all the material points that arose from the cumulative evidence (appearances and written) immediately below.

As a result of cross-examination, several Wildlife Trust witnesses requested that parts of their submitted evidence be withdrawn, because they conceded, under examination, that their proofs had been written with scant, or no regard to the evidence published, presented and explained earlier by WG witnesses. I have indicated the main material concessions of the Wildlife Trust witnesses in the relevant paragraphs highlighting their respective evidence below because these concessions substantially changed the submitted evidence.

In closing his case on behalf of the Gwent Wildlife Trust and others, Mr Brendan Moorhouse of Counsel asked that the Inquiry differentiate between:

- *witnesses who were direct representatives of the Trust and on whom the Inquiry could rely to represent a consistent position opposing the scheme, and*
- *those whose individual appearances had been marshalled by the Trust because they opposed the principle of building a motorway but submitted relatively individualistic and partly inconsistent evidence with each other.*

I have had regard Mr Moorhouse's request, and those differences of opinion, in reaching my conclusions.

The evidence of Professor Calvin Jones-on the issue of the economic case for the scheme

6.113 Mr Jones is Professor of Economics at Cardiff Business School and, although he is not a transport expert, challenges the economic models used by WG in producing its economic forecast for the scheme. In his opinion, there is no substantiated evidence that poor road connectivity has adversely affected the economic or employment growth in South Wales. He considers that this area is held back economically by a lack of:

- little economic variety;
- few headquarters of firms;
- adequate levels of entrepreneurship;
- personal aspirations, and
- proper skills and qualifications.

6.114 He claimed that the scheme would be at odds with the WCFG 2015 Act, which, in his interpretation, requires the public sector to work towards:

- low carbon and holistic development measures;
- the new Cardiff City Deal;
- a desirable modal-shift away from private transport for leisure and work travel, and
- the development of the South Wales Metro.

6.115 Professor Jones accepts that the scheme would be carbon neutral, but the Metro would have a wider influence in reducing carbon overall. In his

opinion the scheme would confront the desired narrative and perception that Wales is a sustainable, green country, with abundant and well-managed natural resources, within which to do business.

- 6.116 Professor Jones claimed that the scheme has little support, but widespread opposition in many parts of the civic society, business and the political classes. A key issue is not whether the scheme would be a good investment taken in isolation, but whether it would be the best use of scarce and borrowed finance for development in Wales. He believes that a number of elements suggest not and that allocating the bulk of Wales' borrowing authority to improving connectivity along the M4 corridor would be extremely divisive. Up to 30% of households in the region do not own a car and therefore the investment in the scheme would be of no benefit to them, whilst investment in public transport would have a greater positive impact on those people. Investments in cycling and green infrastructure can improve access to work and have favourable health outcomes, give access to other services, be environmentally appropriate and reduce climate change-related emissions.
- 6.117 Digital technology, including the development of autonomous vehicles and advances in freight transport, would provide for future traffic growth without causing congestion or accidents. Combining these advances with modal-shift, an aggregate reduction in travel demand and the quickening of irreversible socio-technical trends, risks a massive "overbuild" in terms of motorway capacity if the scheme proceeds.
- 6.118 Professor Jones accepts that the scheme would provide benefits but these, in part, would accrue to regions of England rather than South Wales, even though the capital cost would be picked up by the Welsh taxpayer. The money would "leak" from Wales because of non-Welsh beneficiaries in the form of large contractors and suppliers and contractual VAT repayments to HM Treasury. The cost of the scheme has been underestimated because of a potential high demand for labour and materials in South Wales during the same construction period.
- 6.119 No detailed study of the cost benefit analysis has been undertaken by Professor Jones but it appears to him that the significant ecological impacts have not been taken into consideration and that, if taken into consideration, would further reduce the economic performance of the scheme which could turn it negative. Maintenance costs do not appear to have been included in the economic calculations and greenhouse gas emissions have been predicted to increase as a result of the scheme.
- 6.120 The arguments advanced around economic agglomeration are, in this case, far less strong than usually assumed. They may occur but would not accrue for a long period after the road opened.
- 6.121 On the basis that the user should pay, Professor Jones advocated that the UK and WGs should not reduce the tolls at the Severn Crossings, but actually extend them to cover the whole of the M4, including the

proposed new motorway.

**Inspector's Note*

Under cross-examination Professor Jones conceded that he was not aware that maintenance costs had been included in the economic analysis and wished that part of his evidence to be withdrawn. He had not studied the ES or the proposed ecological mitigation and was only vaguely aware of such matters. He had not read any of WG evidence, or that of the CBI or other supporters, and he was unaware of the type of engineering contract let by WG or how risk-management was built into it. He therefore wished to withdraw his criticism of contractual risk. He further stressed that if the scheme was in England he would not have appeared at the Public Inquiry since his main interest was retaining "Welsh money" in Wales for the greatest benefit of Wales and not opposing a road scheme which may not, of itself, be a bad scheme.

WG response

- 6.122 It is accepted that the quality of transport and of highway infrastructure is just one factor, amongst many, that determines the economic performance of a road scheme. However, the quality of transport is one aspect which contributes to the overall quality of the business environment. There is empirical evidence which demonstrates the positive economic benefits that improved transport can deliver and a number of studies have been successful in identifying a causal relationship between transport and economic performance. The projected increases in employment arising from the scheme would be a result of "firm entry" into the region, rather than an increase in the size of existing firms. Studies have also shown that firms who are looking for new premises state that accessibility is one of the key factors influencing their choice of new location. These factors would all benefit South Wales following the construction of the scheme and firms would be less likely to leave South Wales and move on. Research undertaken at the University of West of England concluded in 2016 that: "*inaccessibility clearly has major impacts on levels of productivity in Wales, including possible remoteness from major markets, specialist suppliers and services, larger pools of skilled labour or contact with other businesses and informed sources*".
- 6.123 The reasons Professor Jones uses to explain the poor economic performance in South Wales may be valid but that does not mean that the poor quality of South Wales transport network is also not an important factor. The poor level of service offered by the existing M4 acts as a barrier to attracting new investment, whilst poor transport also limits the pool of labour and therefore skills available to firms. Supporters of the scheme, of which Professor Jones appears to be unaware, highlight this.
- 6.124 The suggestion that the proposed expenditure on the scheme would exacerbate interregional and social disparities is wrong. The M4 is the primary route in and out of Wales for around 70% of the country's economy. It provides access to all parts of South Wales from the South West of England, the South-East and London. It is the most heavily used piece of transport infrastructure in Wales and current congestion results

in delays for both inter-urban and inter-regional east-west travel but also for a range of other journeys, including commuter travel through South Wales. The benefit of the scheme would be felt over a wide area.

- 6.125 The whole of South Wales is dependent on the economic performance of the urban areas along the M4 corridor. This is the basis for the City – Region agenda, which is shaping economic development policy in South Wales. It is accepted that the scheme would not directly address entrenched social issues, or directly benefit those without a car, but it would contribute to overall competitiveness in the South Wales economy and, in removing congestion, assist public transport which frequently gets affected by motorway delays at Newport.
- 6.126 Delivering the scheme would create employment and would also bring an investment in skills. Contractual arrangements have been established to ensure that such benefits are maximised. The contractor has committed to achieving 20% of labour costs from new entrant trainees which would serve to maximise the economic benefits of the construction period both in the short and long term.
- 6.127 The cost benefit analysis for the scheme has shown it to be positive on the assumption of central growth of traffic and taking a conservative approach to motorway delays. These are currently prevalent on the existing road. The economic appraisal has been undertaken in real terms, using a consistent price base for both costs and benefits. History has shown that in the long-term construction prices have risen at a similar rate to prices in the economy more generally and so inflation is unlikely to cause an underestimate of the budget for the scheme. At the Inquiry Professor Jones accepted that he had not studied WG evidence and that he had missed that the scheme would be incentivised to keep costs down and that risks had been taken into account (PIQ055).
- 6.128 Contrary to the view expressed by Professor Jones, the scheme would contribute to WG's well-being objectives and consequently to the well-being goals of the 2015 Act. Far from being at odds with the Cardiff Capital Region City Deal, which is entirely independent of the scheme, the scheme would be fully in line with its objectives to improve economic conditions.
- 6.129 The scheme would be carbon neutral in operation thus minimising environmental impact and the embedded and additional mitigation measures would in time significantly reduce the impact on the landscape and natural heritage.
- 6.130 The scheme would improve the image of Wales as a place to visit and do business by improving accessibility. It would remove the widespread negative and damaging knowledge of continual traffic delays and uncertainty on the M4 at Newport. Walking, cycling and bridleway measures have been incorporated in the design to improve accessibility to public transport services and enhance non-motorised transport networks.

6.131 The scheme was developed after a long period of engagement with stakeholders and the public, dating back to the early 1990's. Contrary to the erroneous one-sided assertion of Professor Jones the publication of the draft Orders was very well supported across South Wales with about 200 unique pieces of correspondence received that clearly expressed support for the scheme. In the order of 60 of those were submitted on behalf of local authorities, companies or organisations that provide significant employment across South Wales for thousands of people.

The evidence of Professor John Whitelegg - on the issue of transport economics

6.132 Professor Whitelegg is a visiting Professor in the School of the Built Environment at Liverpool John Moores University and a Transport Consultant. He considers that progress on the scheme should be halted and a broad appraisal undertaken of other wider solutions to the acknowledged problem of congestion on the M4, together with a peer review of similar schemes from which the magnitude of induced traffic could be estimated more accurately*.

6.133 He objects to the proposed scheme on the following grounds:

- roadbuilding on the scale of the suggested M4 would be incompatible with sustainability considerations and objectives;
- there is no evidence that improved transport delivers economic benefits or that the perception of good transport influences the decisions of businesses and visitors;
- positive economic results may accrue but if they are not certain they should be given limited weight in the decision-making process;
- it would be incompatible with The Environment (Wales) Act 2016;
- it would generate the maximum carbon of any option (980,000 tonnes of carbon dioxide), the top down approach used to assess the capital carbon of all infrastructure projects indicating far more carbon burn associated with the M4 than the figures suggested by WG and they would be incompatible with Climate-Change policy and Government support for reducing greenhouse gases;
- it would generate large amounts of induced traffic;
- traffic forecasts used to justify the scheme may be exaggerated or inaccurate;
- it would add to congestion problems in, or near, urban areas and that defeats the economic justification or rationale for new roads, because the additional road capacity provided would be consumed by trip purposes not directly related to a strong local economy**;

- national and international evidence is very clear that new roadbuilding is just as likely to drain jobs away from a local economy as it is to attract them;
- it would be very expensive;
- the economic case for it is based on congestion relief and improved local economic performance, both of which would not happen, thereby exaggerating the claimed value for money, and
- development of the scheme has not followed WebTag or the principles of logic that underpin Transport Appraisal. Non-roadbuilding and low carbon options were not developed in sufficient detail to be tested against the proposed scheme.

Inspector's Note

**In response to a question from me, Professor WhiteleggWhitelegg accepted that despite advocating a peer review before decisions to proceed were taken, he did not know of any comparable scheme to the situation at Newport against which the proposed scheme could be peer reviewed.*

***Under examination, Professor WhiteleggWhitelegg accepted that the scheme would reduce traffic on the existing M4 by 50% and he clarified that he has very limited knowledge of the variable demand traffic model which indicated a very small percentage of induced traffic. However, he thought that, without substantiation, the figures appeared to be on the low side but accepted that the volume of induced traffic would not cause congestion on the proposed road although he maintained his view that the motorway corridor could remain in a congested state after opening of the proposed road.*

Despite his claim about carbon generation, Professor WhiteleggWhitelegg did not challenge the contrary WG evidence on that subject and did not challenge WG evidence about carbon neutrality or its traffic forecasting analysis.

WG response

6.134 It is not accepted that the economic benefits of road schemes are unproven, an assertion that runs counter to a significant body of evidence in the UK and elsewhere. In previous studies 47% of large manufacturing establishments, 84% of small manufacturers and 85% of distribution firms considered that easy access to markets had helped increase business, whilst others said that good access had been a factor in their choice of locating the business. There is substantial evidence which suggests that transport can lead to positive local economic outcomes, although it is accepted that these outcomes may not occur in all circumstances.

6.135 For this scheme there are a number of reasons to suggest that the economic impacts would be significant. In summary these are that:

- the M4 is the most strategically important road in Wales and the primary route in and out of the country for the movement of goods;
- the M4 is already highly congested, which shows that transport

demand exceeds supply and that capacity constraints are currently imposing costs on economic activity;

- in this regard, it is notable that the Eddington review concluded that: - *“a transport link is unlikely to improve an unproductive urban area unless there is underlying demand for this connection, and that productivity returns are likely to be greatest where there is demand for transport, as manifest, for example through congestion”*;
- good access, both within and between urban areas, is the primary mechanism through which transport affects productivity;
- the improvement in journey times and accessibility would be substantial and widely appreciated, and
- there are a number of strategically important employment sites that would lie close to the scheme which suggests that the impacts on investment and employment are likely to be significant.

6.136 In terms of the two-way road argument there is little empirical evidence to show that transport improvements have drained away jobs from large, already interconnected economies. South Wales is already a large and connected economic entity. There is no reason to conclude that South Wales would lose out as a result of any increase in competition. Improving access both within South Wales and between South Wales and other areas of the UK is one of the ways in which the scheme would deliver improved productivity. Taken to its logical extent, if there is a belief that improving transport results in economic activity draining away from a region, then the best strategy for WG would be to lobby for higher tolls on the Severn Crossings and encourage more congestion on the M4. That would be an absurd position which would be in direct conflict with both policy and the views of the majority of economists and the great majority of the business community in Wales.

6.137 The publication of Rosewell and Venables states: *Increased connectivity increases the potential for trade, whether by improving free connections or by improving the ease with which meetings can take place, with firms, plants and offices moving to new and now more efficient locations.*

6.138 It is acknowledged that there is a significant degree of uncertainty over the precise relationship between peripheral reality and productivity and that there is sufficient evidence to conclude that the productivity benefits of reducing peripherality are significant and additional to both user benefits and agglomeration effects.

6.139 It is also accepted that the economic appraisal of some schemes could be overestimated by the omission of induced traffic. However, in the case of this scheme the variable-demand traffic model does account for induced traffic but still provides value for money. The degree of induced traffic on the scheme would be small.

6.140 Professor Whitelegg used a top-down approximation approach to assess the likely generation of carbon and furthermore has extrapolated the top-down calculation methodology beyond its intended meaningful range. In contrast, the assessment of carbon on the scheme has been based on a more accurate detailed calculation which has shown the scheme to be carbon neutral.

The evidence of Professor Lorraine Whitmarsh – on the issue of climate change

6.141 Professor Whitmarsh is Professor of Environmental Psychology at Cardiff University, is the University partner coordinator for the Tyndall Centre for Climate Change research and has expertise in transport and behaviour.

6.142 In her opinion, there should be life-style changes in society away from carbon intensive activities. In that regard, motorway closures can force drivers to try alternative modes of transport and thereby potentially realise their attractiveness. Even minor changes to infrastructure such as improved signage for cycling and walking can impact on behaviour. Policies to encourage sustainable mobility require both making the car less attractive and making the alternatives to it more attractive. In that sense, the scheme would be counter-productive because it would generate induced traffic*.

6.143 The Climate Change Commission for Wales has reviewed transport policy and climate change in Wales and concluded that roadbuilding would negatively impact on climate change targets, as well as other sustainability goals. Despite this, roadbuilding continues as a priority for policymakers and WG, with less attention being given to mode-shift, improving transport technologies or reducing demand. The scheme would have negative implications for most of the goals set out in the 2015 Act (PIQ078).

Inspector's note

**In answer to a question from me, Professor Whitmarsh clarified her position as one where she was opposed to the proposed M4 (and other road building) and wanted restraint on the existing motorway in the form of tolls, junction closures, speed control and lane removal to limit capacity, all in an effort to force drivers off the road and onto buses or trains.*

WG's response

6.144 Whilst it is government policy to continue with a roadbuilding programme in Wales, the scheme would be complementary to and compatible with public transport enhancement in the region, including the South Wales Metro. It is recognised that, for transport schemes, the impact on journey times and cost will, in principle, influence the level of demand for travel. A big new road could elicit a number of changes in trip making behaviour, including route reassignment, re-timing, redistribution or modal shift and, to some degree, induced traffic. Conversely, doing nothing to a congested road system could result in trip suppression which could manifest itself as modal switching to public transport, or a reduction in

the length or frequency of journeys. The Department of Transport's advice takes these factors into account in producing traffic models. As a new road would improve journey times, reduce congestion, improve safety and reliability, induced traffic that could arise should not necessarily be interpreted as a negative effect, as users would still benefit from easy access and better journeys. In the event there would be very little induced traffic arising from the construction of the scheme.

6.145 The report by the Climate Change Commission was published in 2012 before any analysis of the scheme's impacts were carried out. It is based on the principle of avoiding transport demand and shifting to more sustainable transport modes. Many of the suggestions to achieve this would take many years to produce meaningful impacts, particularly those that depend on behavioural change, and freight hauliers switching from road to rail. In contrast, the problems associated with the M4 around Newport require urgent action now that would result in relief being delivered in the near future. That would not preclude WG from taking other actions to deliver an integrated transport system or modal change. The South Wales Metro is one such initiative, although its effect on reducing congestion on the M4 would be very small as would other public transport improvements in the region.

6.146 Professor Whitmarsh's suggested alternatives that would avoid the need to travel, have had little impact to date. The scheme would not preclude these futuristic alternative strategies. A shift to public transport in the foreseeable future has already been taken into account in assessing the need for the scheme.

Professor Terry Marsden - on the issue of sustainability

6.147 Professor Marsden holds the chair of Environmental Policy and Planning in the School of Geography and Planning at Cardiff University, and objects to the scheme because:

- it would not be compatible with a more distributed economy across South Wales;
- it would have been legitimate when carbonised solutions in the transport sector and wider economy were acceptable. As that is no longer the case, this legacy proposal would not accord with the efforts being made in Wales to develop a de-carbonised society;
- its development fails to follow the principles and goals set down in the WCFG 2015 Act;
- it would not encourage modal-shift or changes towards electric vehicles;
- it could not be described as a low carbon/no carbon "circular economy", whereby economic, ecological and bio-sensitive systems replace waste inducing systems with all their current environmental and health externalities;

- its budget would frustrate the deployment of opportunity to invest public funding in more distributed ways, which would benefit wider (non-mobile) parts of the population, increase access and indeed reduce congestion by improved planning and modal shift, and
- on grounds of public finance efficiency, the scheme would not be fit for purpose.

WG response

- 6.148 There is no basis for claiming that the scheme is a legacy proposal. It is the appropriate solution to the current problems of the M4 around Newport which effectively is a stranglehold on transport movement across South Wales. It should not be seen in isolation but as part of a package of measures that include public transport improvements, designed to produce a comprehensive and integrated answer to the transport problems faced by people living and working in south-east Wales.
- 6.149 The scheme would be part of an integrated transport network which would provide better access to the Severn Tunnel railway station and the national rail network. The Glan Llyn junction would provide access to a park-and-ride facility and the proposed Metro station. By improving access to alternative modes, the scheme would make travel by means other than the car more attractive, hence directly encouraging modal shift.
- 6.150 A more distributed economy, as advocated by Professor Marsden, would appear to be contrary to national planning policy and could arguably increase the need to travel, a notion apparently endorsed by Professor Whitmarsh. It is a fallacy that the scheme would not benefit the wider population who do not have access to a car. Motorways which are used by buses are an integral part of modern society. Congestion on the M4 causes problems on the local road network in Newport, it delays public transport and on occasions affects the movement of emergency vehicles within the city. By removing such problems, the scheme would help public transport within the city and an efficient bus service which is a pre-requisite for modal shift to occur.
- 6.151 Apart from that, an efficient, resilient motorway network is essential for the movement of goods and people and the delivery of services. The scheme is necessary to address a current problem that requires action today in accordance with the sustainable development principle set out in the WCFG 2015 Act to prevent the situation getting worse and leaving it for future generations to deal with. WG is taking other actions and implementing other policies in parallel to the promotion of the scheme to ensure that its actions as a whole contributes to the achievements of its well-being objectives and to the goals set out in the WCFG 2015 Act.
- 6.152 Contrary to the view, that on grounds of public finance efficiency, the M4 proposal would be unfit for purpose, the economic appraisal of the

scheme shows it would provide good value for money which, when wider economic impacts are included in the assessment, shows a benefit to cost ratio of over 2 to 1.

- 6.153 It is noted that Professor Marsden's evidence suggests a degree of control over the spatial distribution of economic activity. That is unrealistic. There are many sectors of the economy which place high importance on access to the motorway network in order to function successfully because of the need to move goods over long distances. Other functions are most successful when located in urban areas where they can take advantage of knowledge-spill-overs, access to a wider pool of labour and operate as a part of a cluster of activity. That is the basis for agglomeration economies which are an important source of productivity benefits for the scheme. The transport network facilitates agglomeration effects and the growth of urban areas, but the ultimate driver of the spatial distribution of economic activity is firms seeking to reduce costs and maximise productivity. The scheme would assist in that. Firms which place a value on access to a large pool of labour or access to the motorway network respond to a poorly functioning transport network by relocating elsewhere. That ultimately would lead to lower levels of investment, lower levels of productivity and lower wages in South Wales. The whole of South Wales is dependent on the economic performance of urban areas along the M4 corridor which, in essence, is the basis for the City Region agenda which is shaping economic development policy in South Wales. Improving the M4 is fundamental to that.

Professor Kevin Anderson - on the issue of climate change

- 6.154 Professor Anderson is Professor of Energy and Climate Change in the School of Mechanical, Aerospace and Civil Engineering at the University of Manchester and a Professor of Climate Change Leadership at the University of Uppsala, Sweden.
- 6.155 He considers that the scheme would increase carbon dioxide emissions, at a time when unprecedented reductions in carbon are globally required, is highly misguided and would impose still further misery on those poorer communities living in more climate vulnerable landscapes, as well as on future generations, including those within Wales. If WG is to uphold its repeated climate change commitments in accordance with the Paris agreement and its obligations under the WCFG 2015 Act for a low carbon society that takes account of global well-being, the scheme could not be justified. Carbon emissions need to decrease by 12-16% if the objectives of the Paris Agreement are to be met.
- 6.156 The construction of the scheme would involve materials, processes and soil disturbance (to the alluvium and peat layers of the Gwent Levels), all of which would result in further releases of carbon dioxide. It is well known that new roads induce additional traffic and additional traffic causes additional travel which in turn increases carbon generation in the atmosphere. In this case the key question is whether the increase in emissions on the proposed road would be offset by decreased emissions

elsewhere. Despite the Professor's opinion that WG evidence over estimates the amount of carbon that would be generated, the evidence from studies on induced demand suggests strongly that they would not and the total emissions would increase.

6.157 Ongoing road maintenance would also generate carbon.

6.158 WG report on carbon emissions is welcomed, but limited, in that it does not assess the total of generational carbon across the wider road network. The reduction in carbon from the eradication of the stop-start nature of traffic would be off-set, as induced demand sees an increase in traffic because of the provision of increased capacity. The advent of automated vehicles would reduce the case for the scheme in terms of carbon reduction because of the anticipated major changes across the vehicle fleet by 2037. That would improve air quality irrespective of the scheme. The carbon report does not deal with the potential situation of spending £1 billion on alternative schemes to enhance public transport, cycling or high-speed virtual communication. Much greater and more innovative thought should be applied as to why the scheme is deemed to be necessary and what alternatives exist.

6.159 The traffic forecast needs to be very carefully considered and, rather than assuming growth, should question how the recent and prolonged levelling off in traffic growth can be sustained or growth reversed while improving the overall quality of productive travel options. Local cross-town traffic should be encouraged onto lower carbon transport modes which should be made available.

WG response

6.160 Far from the scheme having an insufficiently deep analysis of its carbon effects there has never been any major new highway scheme that has analysed carbon emissions to the extent that has been modelled and presented in the carbon report for this scheme. As explained in the report, and proven by analysis, the scheme would essentially be carbon neutral.

6.161 The traffic modelling undertaken for the scheme for both do something and do minimum scenarios shows a greater overall amount of traffic with the scheme in place. This means that the model has taken into account induced demand and as the carbon analysis is based on the traffic modelling, it follows that it too takes account of induced demand. Professor Anderson's criticism in this regard is therefore wrong. It is also interesting to note that, in the cases cited by Professor Anderson, new reports highlighted that the carbon emissions observed in operation were significantly lower than the original predictions made during the design period. It is also interesting to note that the Paris agreement preceded the Environment (Wales) Act which sets different targets that must therefore prevail in Wales.

6.162 In this case an accurate analysis has demonstrated that, with the

motorway open carbon emissions would reduce by 3% relative to the current situation. It has also been demonstrated that an overall carbon improvement on the wider network would result from the construction of the scheme, because it's attractiveness would draw traffic from less suitable (more polluting) road corridors onto a low-gradient modern and commodious road. That point has been missed by Professor Anderson.

- 6.163 As there would be a significant reduction in traffic on the existing M4 its maintenance demands in future would be lower than would otherwise be the case whilst the new motorway would require very little maintenance for years to come.
- 6.164 Professor Anderson's assertion that soil disturbance during construction would result in the release of carbon is also wrong. The local peat has already been disturbed over the years by intensive farming and does not now actively sequester carbon. During construction, soils would be handled in such a way that they would not dry out and hence would not release methane or other greenhouse gases in any significant quantities during stockpiling. The engineering of the scheme would specify that the topsoil would be left in a place for engineering and geotechnical reasons, rather than being stripped prior to bulk earthworks. The deeper peat layers would be unaffected by the construction, with no significant change to water tables so the regime that causes the release of methane and other degradation processes that could release carbon dioxide would be substantially the same as naturally occurs now.
- 6.165 The introduction of automated vehicles would have very little effect on pollution levels up to the design year of the scheme, with predictions indicating a very slow and low release of such vehicles onto the motorway network.

Professor Sir John Lawton – on the scientific principles underpinning effective conservation (written submission)

- 6.166 Professor Lawton led a review of the resilience and adequacy of England's wildlife sites and the subsequent report: *Making Space for Nature* was published in 2010. It concluded that England's ecological network is too small and isolated and called for better protection of England's wildlife with the establishment of new ecological restoration zones. This was widely supported leading to the 2011 establishment of nature improvement areas. The report continues to inform policy today.
- 6.167 In Professor Lawton's opinion, the motorway would severely damage one of Europe's most important wildlife sites, and that damage is very unlikely to be offset by the proposed mitigation. In his view, the scheme would destroy and fragment large areas of designated SSSI and SINC habitat and significantly damage population numbers of several vulnerable species, including some European Protected Species. The effect of population reduction would be to make these populations more vulnerable to local extinction. Fragmentation reduces, or eliminates, the potential for dispersal and recolonization, devaluing remaining habitat

and ultimately resulting in a greater risk of the regional extinction of some species. The measures proposed to mitigate the effects of the scheme are unlikely to be effective. They are scientifically unproven and, in some cases, appear impossible. The scheme is therefore likely to have a significant adverse ecological impact on the Gwent Levels ecological cathedral which deserves protection.

6.168 There is bound to be a negative impact on a wide range of protected species, although without detailed surveys, the quantum and variety of the effect cannot be determined. The proposed scheme is designed to do the exact opposite of the Lawton Report/16 recommendations, namely:

- less, smaller, worse and fragmented habitat designated as SSSI;
- resulting in smaller areas surviving for nature conservation potentially deteriorating habitat conditions in the surviving habitat patches, and
- an increase in isolation of sites.

6.169 Professor Lawton agrees with others that the proposed mitigation would not significantly reduce the detrimental impacts on wildlife. He considers that WG's proposals are in direct contravention of the relevant legislation identified by GWT.

WG response

6.170 As a general observation, WG:

- does not agree that GWT has provided a detailed description of the impacts, evidently failing to have regard to the ES and the ES Supplements;
- highlight that the GWT witnesses have submitted evidence comprising critiques, rather than any independent assessment of likely impacts, and
- refer to the comprehensive rebuttals prepared in response to the evidence submitted by the various witnesses, which wholly negate their arguments.

6.171 The scheme has been designed to satisfy its objectives whilst, so far as is practical and reasonable, has promoted effective mitigation measures. It is accepted that any new road can lead to fragmentation and the deterioration of retained habitats, but the route and detailed engineering and environmental design has specifically been developed with a view to reducing these impacts. Numerous culverts and other safe crossings have been included to make the scheme permeable to wildlife and specific drainage and construction details would ensure that water quality within the Levels is protected. The reen and SSSI mitigation strategy have both been developed collaboratively in close consultation with NRW, specifically to develop biodiversity enhancements in the medium to

longer term, having regard to:

- European Protected Species;
- the SSSI qualifying features, and
- those habitats and species listed under Section 7 of the Environment Wales Act 2016.

6.172 The evidence demonstrates that WG has taken all reasonable steps to maintain and enhance the relevant habitats and species, "*consistent with the proper exercise of its functions regarding the motorway network*". This fulfils the above duty under Section 7 of the Environment Wales Act 2016.

6.173 The assessment and mitigation measures have taken a precautionary approach, as published in the ES and its Supplements. It is clear that, as demonstrated at the Inquiry, many of the GWT witnesses had not seen the mitigation measures proposed, especially with the detail that has been set out in specific mitigation strategies. With the exception of bat mitigation, other mitigation strategies have been accepted by NRW as sufficiently likely to succeed and this has enabled them to remove their objections.

Professor John Altringham on the effect of the scheme on bats

6.174 Professor Altringham has considered the likely effects of the scheme on bats through an assessment of the ES, the mitigation compensation proposals within it and his own research. His evidence included a brief discussion of the well-documented, long-term impacts of roads on wildlife that are not acknowledged by the ES. Professor Altringham accepts that the reasonable bat surveys use appropriate methods but the data shows that the motorway would fall on important bat habitat.

6.175 He notes that the ES is almost entirely concerned with construction impacts and makes insufficient reference to the long-term, landscape-scale impact. His report to Defra shows that major roads lower bat activity and the area becomes less species-diverse, for at least 1 to 1.6 km either side as the missing bats die or are displaced leading to population decline, since displaced bats will be in competition for resources elsewhere. The ES fails to take account of that basic ecological principle and assumes wrongly that there is lots of empty habitat waiting for displaced bats to occupy.

6.176 Professor Altringham notes that the ES assesses the impact of the construction without effective mitigation as Moderate Adverse and it is claimed that the package of mitigation measures would reduce the impact to Slight Adverse. In his view, the chosen mitigation would be at best high-risk and largely ineffective and at worst completely ineffective. The ES shows that most species would not benefit from the mitigation and acknowledges the lack of evidence for its effectiveness for others. The ES does not appear to have taken on board the critical

distinction between the use of a structure by individual bats and its effectiveness at protecting bat populations. Reports are cited that describe the use of overpasses and underpasses by small numbers of bats in support of their value as mitigation tools. There is no mention of the number of bats that no longer go near a site or cross the road. The purpose of mitigation would be to ensure that a very large majority of the bats present before construction continue to cross the road safely after construction. By these criteria, most mitigation is untested or failing. Professor Altringham's critical study is not cited at all in the ES, despite being widely publicised.

- 6.177 Bat boxes are suggested by WG as effective replacements for lost roosts. In the Professor's opinion, bat boxes and bat barns represent a high risk, poorly assessed, mitigation solution for lost roosts. There is no guarantee that they would work and a high probability that they would not. Work by *Stone et al 2013* reported that only 13% of bat boxes erected for mitigation were used and no assessment can be made of their value as effective replacement roosts.
- 6.178 Based on current evidence, bridges, with the probable exception of wide green bridges, are not an effective means of providing safe road crossings. Culverts and underpasses have the potential to be effective if large enough, sited on pre-existing commuting routes and well connected to the landscape. Most of those proposed would be too small, most would be placed well away from known commuting routes and many would be poorly connected to existing commuting routes. In combination these factors are highly likely to make the mitigation ineffective.
- 6.179 In summary, in addition to there being no consideration of the long-term effects of the operational road on bats, there is considerable scientific uncertainty about the likely success of the short-term construction mitigation plan and, as such, the plan does not meet the requirements of European law, which demands that the success of the mitigation must be beyond *reasonable scientific doubt*.
- 6.180 In the light of the above, the mitigation measures proposed by WG concerning protected species would be insufficient. Regardless of the test to be applied, there is little, if any, scientific evidence to suggest the measures proposed would be effective. In the Trust's view that mitigation cannot sensibly be relied upon by WG.

WG response

- 6.181 Contrary to his criticism, the ES does acknowledge the work of Professor Altringham which identified low bat activity extending up to 1.6 km on either side of the M6 motorway in Cumbria - which, in summary, showed that roads have a long-term negative impact on bat populations and that the scale of the impact was interpreted as indicating a barrier effect. However, bats are known to be present adjacent to major roads. Several examples are quoted, including for Lesser Horseshoe bat maternity roosts present along Section 2 of the A465, including one maternity roost under

the road in a viaduct. These are facts.

- 6.182 Professor Altringham also states that little evidence exists for the effectiveness of currently used mitigation structures for bats on roads, such as underpasses, bridges and wire gantries. However, some road scheme monitoring reports do exist but are not necessarily in the public domain, where effectiveness has been considered. An example is given where the 1 year after opening monitoring report concluded that, on average, 92% of bats which cross the scheme did so safely using the mitigation provided. Bats also successfully cross the existing M4.
- 6.183 On this scheme operational monitoring would be agreed with NRW and form part of the bat mitigation strategy. It would inform the need for amendments to the mitigation measures and would evaluate their use/success. The ES recognises that it is not possible to predict the exact significance of the impact on bats. Therefore, on a precautionary basis the magnitude of impact is assessed as Moderate Adverse and significance of effects as Moderate. This assessment recognises that habitat loss, degradation, and fragmentation may lead to displacement and population decline in the short to medium term. The loss of habitat would be effectively mitigated once woodland planted as part of the scheme reaches full maturity. In terms of fragmentation, even after taking into account mitigation, on a precautionary basis the magnitude of impact is correctly assessed as Moderate Adverse and the significance of effects as Moderate. The magnitude of impact could be reduced by the increasing headroom in culverts, where practicable. Other mitigation measures such as retention of roosts where possible, lighting design to minimise spill, temporary guidance measures during construction, ecological enhancement of land, provision of a bat barn and bat boxes along the scheme and careful removal of bat roosts under an ecological watching brief would be employed and developed as part of the bat mitigation strategy, all in consultation with NRW.
- 6.184 In terms of the Habitats Regulations and the maintenance of species *at favourable conservation status*, it is a fact that an Appropriate Assessment has been undertaken in order to fulfil the requirements of the Conservation of Habitats and Species Regulations 2010 in relation to potential effects on European sites, including the Wye Valley and Forest of Dean Bats Sites Special Area of Conservation, which includes Lesser Horseshoe Bat and Greater Horseshoe Bat as qualifying features. The conclusion was that considering the distance between the scheme and the SAC and the limited numbers of Lesser and Greater Horseshoe Bats recorded in the survey area, with mitigation, including a new bat house and provision of on-road crossings, the scheme would not conflict with the conservation objectives of the SAC. It is therefore concluded that there would be no adverse effect on the viability of the SAC bat populations or integrity of the SAC with regard to bats. NRW agree in principle with this conclusion. In terms of protected species, the "*no reasonable scientific doubt remains as to the absence of such effects*" test is not the approach used by Regulating Authorities for assessment of effects on European Protected Species, including when considering

derogation licenses.

- 6.185 In relation to other forms of mitigation, research into the effectiveness of bat boxes is hindered by inadequate post-development monitoring. Some species frequently switch roosts and may take time to return and reach pre-development abundance. Bat boxes are standard mitigation practice for the loss of low value bat roosts and are designed to mimic the cavities found within trees. The use of bat boxes is promoted by Natural England in their bat mitigation guidelines and they are commonly accepted by NRW as mitigation for licence applications. On the other hand, it is acknowledged that bat boxes may not always be used by bats. This may be due to poor design, location and availability of alternative roosts. There are successful examples, including buildings adopted by both lesser horseshoe and brown long-eared bats as breeding roosts. The bat barn to be provided at Magor would not be for the purpose of replacing a maternity roost but to provide a new favourable roosting opportunity for the lesser horseshoe bats recorded in this area. By locating it to the north of the M4, it would provide better access to more extensive woodland habitat, with the aim of reducing the need for motorway crossing. The bat barn would also provide a suitable building for use by common pipistrelle bats, in replacement for the loss of Woodland House, where three common pipistrelle bats have been observed.
- 6.186 Results of monitoring surveys would be provided to NRW on at least an annual basis, or as otherwise requested by them, and would be used to inform the need for any amendments to mitigation and ongoing habitat management in order to ensure effectiveness and inform the need for amendments to the mitigation measures. Monitoring proposals are expanded upon in the draft bat mitigation strategy which would be agreed with NRW. The need for further monitoring would be reviewed in discussion with NRW.
- 6.187 The number and value of roosts that would be affected is low:
- nine buildings, affecting seven low-value common Pipistrelle roosts;
 - one low-value soprano pipistrelle roost;
 - one low-value lesser horseshoe bat roost, and
 - tree roosts comprising three confirmed and three probable roosts.
- 6.188 At least three bat boxes would be installed for each tree roost to be lost during construction and six would be installed for the building day-roosts to be demolished. The availability of replacement roosts would therefore be greater than the number removed.
- Mr Richard Bakere of Gwent Wildlife Trust (GWT) on the effect on Magor Marsh Nature Reserve
- 6.189 Magor Marsh was established in 1963 and over the years has grown in size as funding became available and became a SSSI following

assessments in 1982 and 1989. The purchase of Barecroft Common, a unique piece of ground, was funded by an appeal to members and other individuals and organisations. The money raised was matched by the Countryside Council for Wales (now NRW). Since then, the ground has been managed for the benefit of wildlife by the collaborative work of a local grazier and volunteers from GWT.

- 6.190 Two of the fields that are part of the Magor Marsh Nature Reserve would be lost, or partially lost, to the scheme. Together they are home to a rare habitat of fen meadow, marshy grassland and rush pasture. This area is special because of the peat rich ground, high water table and history of sympathetic management without agricultural improvement. These fields are home to rare plants. They provide habitat for the otter, a European protected species, and the nationally protected water vole. The local reens also provide habitat for SSSI citation species. The loss of a section of reen would be detrimental to water vole and locally rare plants. Harvest mice protected by Section 7 of the Environment Wales Act 2016 are also present.
- 6.191 The scheme could have an impact on the main nature reserve, from potential pollution, disruption of groundwater, reduced water levels and water quality, run-off from the highway. Additionally; fragmentation effects, noise from raised embankment of the motorway, the effect on bats and otters and increased flood-risk. The proposed replacement reen and ditch mitigation would be inadequate. There would be significant impacts on people using the reserve, on bumblebees and on bumblebee and butterfly recordings and guided walks. The people, wildlife and geography of the Gwent Levels have evolved together over millennia. The scheme would be hugely detrimental to the archaeology of its landscape and wildlife.

WG response

- 6.192 GWT was aware of the protected route when they acquired the Barecroft Common land in 2012, long after it started campaigning against the scheme. Only a small portion of the land acquired at that time would be lost and equates to an insignificant 3% of the area, which is only a small part of the Trust's overall landholding on the Gwent Levels. The directly affected land is not used by the public and is not part of any guided walk or trail. Access into this land is via a padlocked gate, with no formal public access available.
- 6.193 The scheme would not affect groundwater at Magor Marsh because of the low permeability of the soil. The construction would simply widen an existing cutting located 27m above the marsh and would be over 1 km away. Construction works associated with the proposed scheme would not interfere with the flow of surface water that supports the wetland habitat within the nature reserve.
- 6.194 The risk of polluted carriageway water entering the reen and ditch system has been addressed by the design of the highway drainage

system which would provide a high level of treatment prior to any discharge to the watercourses. Environmental commitments would guarantee the provision of these water treatment facilities and that there would be no reduction in water quantity or quality. Connectivity for wildlife would be maintained by means of culverts and dry mammal tunnels and the motorway would be fenced to prevent otter casualties.

Mr James Byrne – the over-arching objection of GWT and Wildlife Trust Wales

6.195 The Trusts object to the covering of 125 ha of legally protected SSSI, which is a nationally important site for wildlife. The area is important for the future well-being of Wales but WG, states that these losses would be balanced by opportunities which align with the well-being goals and therefore the scheme would align with WG's principles of sustainable development. However, as stated by the Future Generations Commissioner in her letter to the Minister, the standard of evidence provided under each of the goals for justifying the project, is not sufficient. Therefore, the scheme is contrary to the WCFG 2015 Act and fails on the following grounds.

Climate change

6.196 Acting on climate change is embedded within three of the well-being goals but evidence presented by Professors Whitelegg and Anderson highlighted that a new motorway would add to carbon emissions. It follows that the scheme does not accord with the Act.

Resilient Wales

6.197 Building a motorway through a nationally important nature reserve would neither maintain nor enhance it. The long-established SSSIs, the largest and most important area of its kind in Wales, provides a range of important ecosystem services to the people of South Wales. Adding further value to this complex wetland is its proximity to the internationally important Severn Estuary SAC, SPA and Ramsar site. The River Usk is designated as a Special Area for Conservation (SAC) and the Gwent Levels are functionally linked to the River Usk and Severn Estuary.

6.198 Around 4,000ha of the original Levels have already been lost to development, with 50% of the Wentlooge Levels and 30% of the Caldicot Levels gone. Further development within or adjacent to the SSSIs would compound that scar and over time these cumulative impacts would lead to further unacceptable losses of invertebrate and plant communities. The motorway would directly affect 125 ha of SSSI habitat. This would be one of the largest losses of SSSI habitat within the UK and long-term the significant effects cannot be adequately mitigated for or compensated. The three main issues would be:

- habitat loss;
- habitat fragmentation – adverse effects of habitat fragmentation to

both wildlife populations and species include:

- (a) increased isolation of populations or species;
 - (b) changes to habitat vegetative composition;
 - (c) changes to the type and quality of the food base;
 - (d) changes to microclimates;
 - (e) changes to flows of energy and nutrients;
 - (f) changes to the availability of cover and increased edge, and
 - (g) there would also be an increase in mortality of animals crossing roads (road mortality is one of the leading sources of mortality to many wildlife populations).
- habitat degradation – this would interrupt unmodified natural processes, altering community structures and population dynamics and this is even more evident in interconnected wetland habitats such as the Gwent Levels designated for the aquatic plants and invertebrates.

6.199 The construction and operation of the road would have a profound effect on hydrology and could act as a conduit for pollutants into the drainage regime. Light and noise pollution from roads can also be detrimental to many species. Road building over sensitive ecological habitats leads to the following triple jeopardy:

- development reduces the total amount of habitat;
- remaining wildlife are squeezed into smaller and more isolated patches, and then
- the high-speed traffic and pollution can cause more and more impacts on the remaining populations – compounding the extinction vortex.

6.200 The list of local affected species is impressive by its sheer volume and their conservation status, including many global, European and UK protected/threatened species. These include otter, dormouse, bats, water vole, great crested newt, breeding and over-wintering birds, fish and invertebrates.

6.201 The company *Aquatic Invertebrates – Bug Life* analysed and reported on the aquatic survey of the Gwent Levels confirming that the quality of the reens and ditches was lower than expected, with lower species richness when compared to the Somerset Levels. Despite this, there are still a number of specialist species found that have particular habitat preferences. These are species that are characteristic of grazing marshes and rarely occur outside ditch environments. Aquatic invertebrates tend

to have specialist habitat requirements and are often found in only one small area of suitable habitat. As a result, even small losses of habitat can have a disproportionately large impact on species population.

- 6.202 The important terrestrial invertebrate survey work carried out for the scheme was inadequate as a basis to develop a meaningful and effective mitigation strategy.
- 6.203 The ES and SIAA acknowledge the parlous state of the European eel and the dramatic declines it has faced from habitat loss and fragmentation. The proposals do not take adequate account of the fact that the Severn Estuary is effectively used as a main repository for the restocking of eels across the European Union. Because of the lack of data there is an insufficient degree of certainty in relation to the effectiveness of the proposed mitigation measures for eels.
- 6.204 The Bat Conservation Trust (BCT) considers that the ES fails to take sufficient account of the proposed motorway's impact on bats. There are accredited published academic studies that show that roads have a negative impact on bats and displace bats (and other wildlife) up to 1.5 km away from where bats forage. The bat surveys have identified less common species and in particular the Lesser Horseshoe bat for which there were some 68 records. This bat is a key species for Wales and is particularly sensitive to disturbance and therefore greater consideration should be given to the impact of the road scheme on this bat species. Given the likelihood for displacement of all bats arising from the operation of this new road, and the presence of Lesser Horseshoe bats close to the proposed route, BCT suggests that the ES is deficient in assessing the impact of the operational phase of the scheme.
- 6.205 The following statutory duties have been breached in the development of the scheme:
- Sections 6 and 7 of the Environment Wales Act 2016 - *to maintain and enhance biodiversity and to apply the principles of sustainable management of natural resources.*
 - Section 28G of the Wildlife and Countryside Act 1981 which refers to features of interest by reason of which a site of special scientific interest is of special interest. The duty is *to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of those features.*
 - The WBFG 2015 Act which requires Welsh Ministers to *maximise their contribution to achieving each of the well-being goals which include a resilient Wales. This means a nation which maintains and enhances a bio-diverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).* The design of the scheme and choice of preferred route was established prior to the Act. Therefore, WG should have

cancelled the proposals in the light of its commitments under the Act. It has failed to do so and, as such, has not ensured it meets its own legislative guidance as outlined in the Acts.

The consideration of priority species in Wales

6.206 WG has failed to comply with its duty under Section 7 of the Environment Wales Act 2016. It has not taken all reasonable steps to maintain and enhance living organisms included on the list published under this Section. For example, WG has failed to undertake specific species surveys in the area that would be affected by the scheme. Species on the list include: harvest mice, polecat, brown hare, blood vein moth, cinnabar moth, latticed heath moth, shaded broad bar moth. WG has subsequently failed to prepare any documents which outline the reasonable steps it plans to take to maintain and enhance these living organisms, which are known to be recorded in the vicinity of the scheme. Despite these deficiencies having been drawn to WG's attention, no further action has been taken to fulfil this statutory duty.

The duty under Section 28G of the Wildlife and Countryside Act 1981

6.207 The mitigation strategy proposed for the SSSI is significantly and fundamentally flawed. WG admits that approximately 125 ha of ancient habitat (including the loss of 2,755 m of SSSI reens and 9,373 m of SSSI field ditches, which contain SSSI features of insects and plants) would be destroyed. This figure excludes a very much larger area that is likely to be destroyed by indirect impacts.

6.208 The mitigation strategy involves new habitats provided at just over a 1:1 ratio. However, the ES gives no adequate indication as to the likely success of this mitigation and gives no evidence that it would be successful. It states that some of the new reens would be located in areas of existing ecological rich habitat. It gives no valid explanation why a ratio of 1:1 replacement was chosen. Scientific research and practice in the field indicates that a far larger ratio than is proposed is what should be applied in practice.

6.209 The proposals to provide replacement reens are likely to be unsuccessful. The Gwent Levels landscape is unique and the ecological communities within it are complex and interrelated over a long period of time. They cannot, by their very nature, be recreated elsewhere. If they are lost to development they will be lost forever. It is impossible, on the basis of the current state of scientific knowledge, to identify and package the raw materials involved and rearrange them in a prescribed pattern to resemble the original. Replacing ancient reens with freshly cut channels and claiming a significant positive impact on biodiversity is neither mitigation nor compensation. English Nature guidance states that habitat creation or translocation put forward for damage to SSSIs is totally unacceptable as mitigation unless it can be shown that the site can be recreated in full at minimum risk, and within a short time span. This cannot apply to the Gwent Levels. Various scientific papers state that

mitigation and compensation involving restoration being used to help the recovery of a degraded system were unsuccessful. They also show that offsets in practical terms rarely achieve a similar ecological value to the site lost.

6.210 We know from previous development on the Gwent Levels, and attempts at re-en mitigation, that mitigation and conversion for development on the Gwent Levels does not work. An example would be the Tesco distribution centre at Gwent Euro Park. Natural Resources Wales approved plans to create new reens as mitigation for the watercourses to be lost through the development. However post-construction monitoring reports raise serious concerns about the negative impacts on the nature conservation value of the SSSI, resulting from the development. There is another example of failure of mitigation in this area. In both cases conditions, or a combination of conditions and a Section 106 agreement, designed to protect the nature conservation interest of this nationally important site, have failed to achieve their objectives. Significant losses in diversity and abundance of 30 important invertebrate and plant communities have resulted. At the end of the monitoring period neither site had recovered to anything like their predevelopment nature conservation value. It is of enormous concern that the proposed development of the motorway would have far larger effects on the environment than these two developments. The above cases demonstrate that the nationally important nature conservation value of the SSSI cannot be adequately safeguarded through mitigation compensation strategies. Far too many variables exist in semi-natural environments for all eventualities to be foreseen and adequately mitigated against. Therefore, the proposed construction of the M4 motorway conflicts with the statutory duties outlined above.

WG response

6.211 The survey work was focussed on those habitats and species listed in Section 7 of the Environment Act 2016 that are likely to be present on the basis of the Phase 1 survey. Targeted surveys for protected species and additional surveys for birds, invertebrates, etc. were undertaken in consultation with NRW. The impacts of the scheme on harvest mouse, polecat and brown hare are assessed in the ES and judged not to be significant. Detailed information on the effects of the scheme on the moth species identified by Mr Byrne is also provided. The overall conclusion is that, with restoration of construction sites and the proposed mitigation areas, there would not be a significant impact. WG has therefore fulfilled its duties under Section 7 of the Environment Act 2016.

6.212 The SSSI habitat losses are clearly set out in the ES with 125 ha of SSSI land affected. 86 ha has been assessed as grazing marsh, but the majority of this habitat actually comprises improved grassland of low nature conservation value. The SSSI and Reen Mitigation Strategies have been agreed with NRW. The aim of both strategies is to achieve a net-gain for biodiversity after the scheme. The SSSI mitigation strategy proposes conversion of arable land and improvement of existing

grassland. The measures proposed are not novel and in-depth information on case studies where habitat has been successfully created, including ditch habitat has been put before the Inquiry. Adequate means for aftercare and maintenance would be in place.

6.213 The ratio of 1:1 for reed replacement was stipulated by NRW for hydrological reasons. However, 5.9km of new ditches would be created in the mitigation areas. Details of how the scheme would cross existing reeds and the construction of the replacement reeds have been put before the Inquiry. There would be no reduction in the extent of the freshwater ecosystem and all possible measures to ensure success would be adopted in consultation with NRW. It is not true that these reeds have been untouched for centuries, as they are regularly dredged by NRW and subject to adverse effects of agricultural practices. The latest condition assessments for the Gwent Levels are not yet available, but indications are that most features are likely to be classified as being in unfavourable condition.

6.214 WG cannot comment on the claimed poor performance of past mitigation for development, as these reports have still not been provided despite several requests being made. They are not before the Inquiry. There are examples of good mitigation including one on the Levels. The Newport Wetlands Reserve was created in the 1990s as compensation for the effects of the Cardiff Barrage. Some 438 ha of habitat was successfully created, including some 161 ha of wet grassland. This was as a result of a planning agreement similar to which WG would be bound by the environmental commitments and legal requirements to deliver the proposed mitigation.

6.215 WG has responded to concerns from the Trust and RSPB regarding the interpretation of duties under Section 28G of the Wildlife and Countryside Act 1981 (WCA); the WCFG 2015 Act and the Environment (Wales) Act 2016.

Inspector's Note

6.216 These legal issues are also covered in Section 2 of the Report.

Section 28G of Wildlife and Countryside Act

6.217 The duty is not as stated to conserve and enhance SSSIs but *to take reasonable steps, consistent with the proper exercise of the authority's functions*. To omit this clause in criticising WG misinterprets and misapplies the duty and therefore the loss of land or other impacts on SSSIs does not equate to a breach of the duty. This approach was confirmed in the decision on the Judicial Review challenge by Friends of the Earth Cymru (F o E) to an earlier stage of the process. The Judge rejected a similar argument made by F o E.

Environment (Wales) Act 2016 (EWA)

6.218 The duty under Section 6(1) is not an absolute one. It requires the

authority to seek to maintain and enhance biodiversity in the exercise of its functions and *promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions*. Regard must also be had to consistency with WG's functions for the motorway network and the Welsh economy.

- 6.219 The EWA seeks to promote sustainable management of natural resources in Part 1. This is linked to the promotion of the resilience of ecosystems by Section 3(2). The results of the ES and proposed mitigation demonstrate that the natural resources referred to in the ES would be maintained or enhanced. The existing water quality would be maintained, or improved, because currently untreated highway would be connected to the proposed water treatment areas. The mitigation measures agreed with NRW are in line with the principles of sustainable management of natural resources.
- 6.220 Section 9 of the EWA requires WG to publish and implement a Natural Resources Policy. This was done in August 2017. The transport element of the resources policy states that it should be addressed in the Wales National Transport Strategy and Finance Plan. This covers modal-shift away from roads but does not preclude all new road schemes. The scheme is included in the Finance Plan and is therefore clearly judged to be necessary to address the problems around Newport.

Well- Being of Future Generations (Wales) Act 2015

- 6.221 The Act itself recognises that development must take place in the present day to satisfy the needs of today's society, but that the form of that development should not preclude choices for future generations. The RSPB/GWT case maintains that the only notion of balancing in the WBFG Act relates to short and long-term needs. This is wrong and an over simplification. It is clear from the Act's definition of "sustainable development" that the required actions involve weighing and balancing different considerations. Section 2 of the 2015 Act refers to the economic, social, environmental and cultural well-being of Wales. Any analysis of whether actions taken in accord with the definition of sustainable development and achieve the 7 well-being goals in Section 4 will involve making judgements., This is especially the case as all actions cannot reasonably be expected to contribute equally to all 4 elements of well-being or all 7 well-being goals. Informed, balanced judgments will be needed to decide on preferred actions taking account of the sustainable development principle and the well-being goals, some of which are, potentially, in tension.
- 6.222 A decision regarding a major piece of infrastructure will require the consideration and balancing of a wide range of effects across the economic, social, environmental and cultural spheres. Whilst the 2015 Act requires new processes and gives statutory expression to the concept of "sustainable development", it does not prescribe answers or outcomes. It does not say that the environment must always outweigh economic, social or cultural considerations but requires a balance to be struck

across all elements of well-being and all considerations. WG's evidence demonstrates that the balance of advantage lies with the scheme. The objectors may disagree with that judgement but the Act does not prevent the Minister from reaching such a conclusion.

- 6.223 The scheme is not a short-term measure as claimed. The congestion around Newport is a long-standing problem that is projected to get worse if not tackled. The scheme would provide a long-term solution to long-term needs and is the only satisfactory solution to have emerged from years of careful analysis, in collaboration with others. The development of the scheme is entirely in line with the principles of sustainable development as now set out in the 2015 Act.
- 6.224 WG has given the views of NRW the fullest consideration and worked with it to overcome their concerns. This is demonstrated by the Statements of Common Ground (SOCGs) and environmental commitments that are narrowing NRW's remaining concerns to just a few matters from the large number initially raised. That is collaboration to achieve the desired outcomes. It is necessary for informed judgements to be made based on evidence, rather than assertion. This is the approach advocated under the Act.
- 6.225 The publication of *Prosperity for All* and the new well-being goals does not alter the above assessment. As shown on page 6 of *Prosperity for All*, each of its four key themes (the same as those in Taking Wales Forward) are supported by three of the updated well-being objectives, providing an explicit link between the themes and objectives. The vision for the *United and Connected* theme includes "*building the vital links that make it easier for people to come together for the economy to grow, and for us to become an ever more confident and outward looking nation*". Well-being Objective 11 "*delivering modern and connected infrastructure*" includes a commitment to deliver *a significant improvement to the M4 around Newport*. The wording has changed from the previous iteration in 2016 *Programme for Government* but it still recognises the importance that WG attached to this project and the published scheme is one of the few put forward to the Inquiry that could achieve *a significant improvement*. The scheme would contribute to the updated well-being objectives (PIQ 146).

Mr Michael Webb on Cumulative Impacts (written statement) (O245)

- 6.226 WG report on consultation on the draft Orders fails to accurately report or address the objections of Gwent Wildlife Trust and others. The legitimate environmental concerns of thousands of objectors, who were assisted in framing their objections by charities, have been summarily dismissed and given the weight of one objection.
- 6.227 Gwent Wildlife Trust considers that the scheme should not be considered in isolation, but as the latest development causing fragmentation and damage to key biodiversity resources in recent decades, the cumulative impact of which is greater than the sum of individual impacts. This is

because each fragmentation renders the habitat or species increasingly vulnerable to damage from future fragmentation, by producing increasingly suboptimal conditions. Thereby reducing their resilience to both further development and to other types of man-made adverse impacts from for example agricultural intensification. Similar effects would arise from pollution and together has resulted in the SSSIs falling into an unfavourable condition. All should have been taken account of.

- 6.228 WG has treated cumulative impacts in a deficient manner. The incorrect claim is made that mitigation would reduce impacts to a minor level and therefore no cumulative impacts could arise. The Wildlife Trust evidence shows this is not the case.

WGs response

- 6.229 The assessment of cumulative effects generally follows the guidance issued by the Planning Inspectorate as well as having regard to the DMRB. Whilst Gwent Wildlife Trust correctly quote the definition of cumulative impacts proposed in a 1999 report to the EU, the approach has changed since then. The Planning Inspectorate guidance states that where developments are completed and the effects fully known this should be included as part of the baseline. This is the correct approach adopted in the ES.
- 6.230 Gwent Wildlife Trust has raised multiple concerns about mitigation, to which a full response has been delivered. *WG has taken all steps that are reasonable with respect to maintaining and enhancing the relevant habitats and species in so far as that is consistent with the proper exercise of its functions regarding the motorway network.*

Mr Geoff Liles on the effect of the scheme on otters

- 6.231 Mr Liles has over 20 years' experience of otter conservation work in Wales. His evidence concentrates on an evaluation of the otter surveys undertaken in 2014 and 2015. The purpose of these was to provide baseline ecological surveys to inform proposals for the M4 corridor around Newport. Whilst this information was used to inform the choice of preferred route by WG and the conclusions regarding impacts on otters for the Usk SAC and Gwent Levels, no detailed mitigation proposals for the scheme relating to otters have been provided. This is in stark contrast to the effort for other protected species such as bats and dormice.
- 6.232 The impact on otters has been underestimated because of serious failings in the 2014/15 otter surveys, the associated desk studies, methodology and report. The surveyors and authors have not demonstrated ecological or conservation knowledge or survey techniques.
- 6.233 The proposed route would cut through otter habitats. Because otters travel to and use all types of water habitats at different times of the year DMRB defined surveys are needed to assess the impact on them.

- 6.234 Previous otter surveys revealed the potential breeding sites and resting sites, which should have been picked up in the 2014 baseline information but no account has been taken of confirmed otter breeding or resting sites. The inadequate surveys mean that it is not possible to assess what habitats need to be replaced and where they should be located. The use of heavily polluted reed beds in water treatment areas would not be appropriate.
- 6.235 The ES does not refer to the otter mortality database compiled by Cardiff University. This shows the locations of otter road deaths and gives an indication of where otters were travelling and their favoured routes. The survey methods were not extensive enough and did not include surveys in each season as required by DMRB guidance.
- 6.236 The motorway could pose a significant risk to otters and it is important not to create barriers to the re-colonisation of habitats by otter populations.
- 6.237 The SIAA states that otters from the River Usk SAC could also utilise habitat within the adjacent Gwent Levels and therefore the loss of habitat from the Gwent Levels could impact them. The assessment has taken the precautionary approach but the River Usk population is unlikely to use all of the area of the Levels that would be affected by the scheme.
- 6.238 The results of genetic research show that individual otters regularly disperse across the Gwent Levels and River Usk and that populations of otters on either side of the river above and below the proposed route should therefore be treated as a single demographic unit. Construction of the scheme would impede dispersal and fragment both otter habitat and this population, reducing connectivity and thus gene flow. This evidence has implications for the SIAA and the maintenance of favourable conservation status of the otter in relation to the proposals. As there is no information on travel routes, any proposed otter underpasses as a means of overcoming the barrier effect would not be successful.

Inspectors Note

The witness during cross-examination explained that he was not suggesting that the road should not go ahead so long as the mitigation was correctly implemented.

WG response

- 6.239 A considerable amount of information has been collated from the studies and field surveys and is presented in appendices to the ES. The desk studies were standard and data was obtained from the 2007/8 surveys and from the South East Wales Biological Records Centre. Data was collated from NRW for the 2015 desk study. As the results of the desk study confirm the presence of otters in similar locations to those highlighted by Mr Liles in his evidence then his records would not have significantly affected the M4 assessment. The desk study was subsequently superseded by more up to date survey work. As agreed with NRW, comprehensive field surveys were undertaken by experienced

surveyors, who do not need to be otter experts, in 2014/15. The results confirm the widespread presence of otters near the proposed road and included a small number of laying-up sites. The impact of the scheme has not been underestimated. The mitigation proposals set out in the ES take the precautionary approach of assuming that otters could utilise all watercourses/water bodies across the Levels, now or in the future.

6.240 Mr Liles makes the point that surveys should be repeated seasonally. However, DMRB guidance referring to 3 monthly survey visits relates to surveys to establish the presence or absence of otters. The above investigations confirmed the presence of otters across the Levels and therefore no further visits were necessary to inform the ES, or the development of the mitigation proposals. Further surveys are planned to inform licensing and detailed mitigation plans and will be carried out four times during 2017. These measures have been agreed with NRW.

6.241 The survey map methodology followed DMRB guidance and that published by Mr Liles. It is accepted practice to survey for otters and water voles at the same time. The survey did search for otter travel routes. Habitat suitability is just one part of the method of assessing the site. It provides additional context to do detailed recording of field signs. A pond on the Tata site was mapped in the 2014 survey report but no survey was undertaken. It will be surveyed in detail throughout 2017. It was presumed that otters could utilise this pond which is approximately 100 m from the proposed road but there would be a water treatment area and reedbeds between the pond and the new road, which would reduce any disturbance impact.

6.242 WG disagrees that the new road would pose a significant risk to otters, owing to the precautionary approach to mitigation which would apply to the full length of the scheme over the Gwent Levels. The measures proposed would include re-surveying of all potential holt/resting sites in 2017⁸ and prior to any construction activities, it is proposed to provide otter exclusion fencing along the entire length of the scheme and around primary filtration ponds in the water treatment areas. The scheme would include culverts and dry mammal crossings to facilitate safe crossing, measures to prevent light spill; and measures to prevent pollution. It is not assumed that otters only travel along watercourses, nor is it considered that a culvert alone will prevent fatalities, hence the commitment to otter fencing. Existing and potential future travel routes would be considered by culverting all reens and constructing adjacent dry mammal crossings. Otter exclusion fencing would help to guide otters to these crossings. This approach means that any future changes in use of the landscape by otters can be accommodated. The existing travel routes, through Mill Road reen underpass would be retained.

6.243 No otter holts or resting sites have been recorded in 2016 or 2017, in the

⁸ This survey has been completed and the results reported in ID/214

landfill site where continual disturbance has reduced the suitability of the area, but surveys are ongoing.

- 6.244 The Environmental Impact Assessment involved a three-stage assessment as recommended by Mr Liles. The full range of operational impacts are considered in the ES. The likely effect of the operational scheme is assessed as slight or moderate adverse. Pollution issues are discussed in the evidence provided by Richard Graham and in the ES. Mitigation would ensure no significant impact ensues.
- 6.245 The evidence presented by the Cardiff University genetic study and Mr Liles makes no appreciable difference to the SIAA. The precautionary approach of the SIAA is that SAC otters utilise the Gwent Levels and could interact with otters from the Gwent Levels. It is unlikely that the otters will utilise all the area of the Gwent Levels. The fact that otter fatalities on either side of the existing M4 are related does not mean that there is regular movement. Otters have a wide home range and juveniles disperse even further upon maturity. In addition, no breeding sites have been encountered in all the surveys undertaken to date. This implies that the Gwent Levels are not important for otters from the SAC. The inference of frequent movement between the two areas is not supported by the evidence. There is a low likelihood of a substantive connection between the bulk of the SAC otter population to the north of Newport and the Gwent Levels, and the scheme would not prevent movement along the river or across the Gwent Levels from the north or south of Newport. Even if there was a lot more movement than thought, the scheme would allow for this movement in the crossings provided. The proposed mitigation involves tried and tested measures. There would not be a significant effect on the species or its favourable conservation status. Otters cross the existing M4 at the moment, and this is without the mitigation proposed for the scheme (ID 106).
- 6.246 No breeding sites have been recorded in any surveys for the scheme. Should a breeding site be recorded in the follow-up survey, alternative provision would be created under licence. The displacement of one breeding otter site, should it occur, would represent a low risk to the integrity of the population. The features described by Mr Liles all form part of the scheme mitigation strategy. The survey results from 2017 and preconstruction will inform the mitigation strategy to be agreed with NRW in advance of construction. It is considered that the favourable conservation status of otters would not be adversely affected so long as adequate mitigation measures are incorporated as matters move forward.

Ms Lindi Rich on the 2017 otter surveys and works in Newport Docks

- 6.247 The primary purpose of the otter surveys of the docks was to assess whether there is suitable habitat present. This calls into question the value and accuracy of the surveys and the expertise of the surveyors. There is some confusion in the dates of the surveys. The sites were not surveyed 4 times as required by DMRB. The use of habitat suitability assessments meant that some areas were not surveyed properly. The

impact of the proposed re-location of businesses within Newport Docks has not been properly assessed and the layout is subject to change. The proposed sites are close to the River Usk and development could be prejudicial to otters and the SAC. GWT agrees with the views of NRW on ESS6 that the potential impacts on otters as a result of the port re-location proposals cannot be fully assessed (ID164).

6.248 The results of the Otter Survey 2017 show that locations were only visited once or twice rather than the four times. The survey does not indicate which watercourses have been visited. It is also vital to identify important overland routes used by otters. Breeding sites could be missed or have been mistaken for resting sites. The surveys are incomplete: several areas could not be accessed for health and safety reasons. The late discovery of the importance of the Mill Reen north of Magor for otters is of extreme concern. The disturbance caused by the scheme to existing otter holts has the potential to reduce breeding success and the otter population of the Levels. The surveys reveal the importance of the Tata lands and the back fen for wildlife. This area should have been avoided in the choice of route.

6.249 It is acknowledged that the habitat and vegetation survey was undertaken properly. ES Supplements 5 & 6 do not address mitigation for loss of priority habitats as a result of the re-location works. The invertebrate survey in ESS6 is inadequate to inform consideration of the re-location proposals, which are subject to change. Concerns are expressed about the loss of ecological mitigation associated with planning permission for the nearby wind turbines. The breeding and wintering bird surveys are also inadequate and the 2015 wind turbine survey was for a smaller area. The possible effects on a Redshank roost in a pier have not been assessed. This bird is a qualifying feature of the SPA.

6.250 It is proposed to re-locate potentially polluting businesses next to the River Usk. The additional risk of pollution as a result of flooding incidents poses a serious issue for the nearby SAC and SPA. There is a potential effect as a result of contamination arising from dredging in the existing docks to facilitate dock improvements. This issue and others shows how the proposals are ill-considered and rushed⁹. The information required for a SIAA is not available and it cannot be considered to be complete. NRW has therefore reached a view on the adequacy of the SIAA that is entirely premature.

WG response

The 2017 otter surveys and works in Newport Docks

6.251 The primary purpose of the surveys was for otters; the habitat survey was additional and signs of otters from that survey were reported as

⁹ Ms Rich again questions the efficacy of the grass-lined channels proposed as part of the scheme. The points and WG's rebuttal are not repeated here.

extra information. This evidence repeats many of the points made by Mr Liles, which have been rebutted. All areas of potential for otters were surveyed. NRW are content with the survey effort. The re-location site is within land owned by Newport Docks and allocated for development in the Newport Local Development Plan. The otters have co-existed with Newport Docks for many years. The re-location proposals must undergo a separate consenting process, including an ES and Habitats Regulations Assessment (HRA). NRW did raise a holding objection as noted by GWT. Subsequent correspondence (ID 236) from NRW recognises the separate consenting process. The HRA that will be required provides an appropriate mechanism for NRW to secure the relevant information it requires. NRW are satisfied that the issues raised in relation to port re-location can be addressed through the approval process under the Habitats Regulations 2017. This is stated in writing in ID 236 (ID164).

- 6.252 Many of the comments about the survey methodology have been responded to already. The locations were all visited 4 times: the table merely records results and changes and does not indicate every site visit. All watercourses within 200m of the Scheme and overland otter routes were surveyed. Results change as otters are a mobile species. This does not indicate poor survey methods in previous surveys. The area will be surveyed again pre-construction and measures taken to prevent disturbance of otters, in accordance with any licence issued by NRW. In addition, the locations where access was restricted in 2017 were surveyed in 2015 and early 2017. These locations will be surveyed again in 2018. The minor errors identified by Ms Rich have been corrected and a revised Otter Survey 2017 Report issued as ID 257.
- 6.253 The detailed impact assessment for the port re-location works (i.e. moving businesses to vacant land within the docks) will be undertaken through the separate consenting process as described in the paragraph above. There are notable areas of habitat that would be affected, but this is an active dock and land is allocated for development. This habitat only exists because of the cyclical nature of the land use here. The overall assessment for the loss of "open mosaic" type habitats would not be altered by these works. The mitigation land for the wind turbine development would not be affected. It is anticipated that further mitigation would be part of the consenting process.
- 6.254 Bird mitigation proposals for the scheme are contained in ID 187¹⁰ and this includes provision for breeding Lapwing. The breeding and wintering bird surveys undertaken so far will be supplemented by further surveys and analysis to inform the application for consent for the port re-location works. The location of the Redshank roost was known and taken into account in the overall Environmental Impact Assessment for the scheme. Similarly, it will be taken into account in the application for consent for the port re-location works.

¹⁰ Bird Protection and Mitigation Plan

6.255 The potential risks from contaminated dock sediment were presented in Mr Clifton's evidence update and ESS5. NRW agree with the conclusion that the works within the docks would have a neutral significance of effect on the local marine ecology. A marine licence from NRW would be required for the docks works. Potential flooding of re-located premises would be considered as part of the consenting process. It may be necessary to ensure that the threshold of flooding is raised to the 1 in 1000 flood event level. The purpose of ESS5 and the Addendum to the SIAA was to provide a high-level assessment of the effects of the docks works. Neither were seeking consent for the works; these would be the subject of a separate consenting process. The comments made by GWT about prematurity and gaps in the information necessary to make a decision about the proposals are therefore without foundation.

Professor Neil Ward's written statement on water quality

6.256 Professor Ward has undertaken a review of the ES Supplement introducing a revised Water Treat Area Risk Assessment. He notes that the assessment makes no comment on cadmium which is a very toxic heavy metal and the data shows levels are higher than environmental quality standards.

6.257 In his view the proposed contingency measures (in the event of unacceptable sediment discharge and accumulation) are highly inadequate and do not address the serious issue of sediment accumulation in the water treatment lagoon and reed bed areas. He questions how is the sediment would be sampled and analysed, for what and using what authorised method? A serious issue would arise if sediment material is removed, the reed bed integrity would be altered and the efficiency of the water treatment area (WTA) would be dramatically altered. The reconstitution of the reed density means that, post sediment treatment, there would be a period of poor chemical removal efficiency which has not been covered by the Assessment.

6.258 Sediment levels of oil-based combustion products and spills accumulate in WTA sediment. This absorbs organic chemicals with the sediment producing a reservoir of these chemicals. Increased storm flow would increase the insoluble fraction of these organics which float on the surface of the WTA outflow water, or are suspended as particulates in the water, leading to increased levels leaving the WTA as treated storm water. Professor Ward's studies of the A34 and M25 WTAs reveal problems with the maintenance and design of these schemes. These issues should have been addressed for the protection of the Gwent Levels SSSIs.

6.259 In conclusion, the water treatment and pollution statements within the ES are inadequate or open to challenge.

WG response

6.260 The measurements indicate that cadmium levels are very low in the

watercourses of the Gwent Levels, and the SOCG with NRW concludes that the risk of breaching the trigger level is low and that unacceptable impact to the Gwent Levels ecosystem is unlikely. The proposed WTAs and drainage system proposed would be markedly superior to those used on the A34 and M25, for the reasons highlighted at the Inquiry.

- 6.261 A surface water monitoring protocol has been agreed with NRW for the proposed discharge of treated road run-off to reens. This allows for monthly surface water sampling of all proposed discharges. Additionally, an annual invertebrate assessment would be undertaken upstream and downstream of all proposed discharges to identify any trends in biological quality that could be attributed to these discharges. Finally, rain sediment quality would be sampled and tested analytically to determine the presence of any trends in potential accumulation of sediments containing potential pollutants that may affect water quality and biological quality of the Gwent Levels.
- 6.262 The WTA are designed to handle a 1 in 100-year storm event, plus a 30% allowance for climate change. The grass lined channels also provide some treatment and storage for highway run-off. In the event of a storm, the extent to which run-off reaches the outfall to the reed bed would still be controlled to the agreed green-field run-off rates, thus protecting the reed bed from storm surges. These mechanisms greatly reduce the risk of sediment reaching the reed bed at any significant volume even under storm conditions and it is therefore unlikely that any large volumes of sediment removal from the reed bed would be necessary. The grass lined channels are designed to trap a large proportion of sediment which would be recovered by a dedicated roadside maintenance plant. Recovery of sediments by the pollution control lagoon acting as a sediment trap would be undertaken by conventional methods. The reed bed would be maintained with the phased replacement of plants to preserve its functionality. Routine inspection and maintenance would ensure that treatment stages have not been compromised.
- 6.263 The potential impact from the run-off from rock salt has been taken account of. In order to avoid environmental impacts, there is a commitment to use calcium magnesium acetate in replacement for rock salt between March and September each year. This material has minimal impact on aquatic organisms and would mitigate the accumulation of chloride within the treatment systems and subsequently the reens.
- 6.264 The surface water monitoring protocol includes monitoring commitments and a programme of inspection, maintenance of the WTAs and associated drainage infrastructure. Should the treatment fail to perform properly, action would be undertaken to identify and rectify such problems.

David Boyce on the effect of the scheme on invertebrates

- 6.265 Mr Boyce has a special interest in the ecology of wetland invertebrates and has been involved in aquatic invertebrate monitoring of the Gwent Levels SSSIs. The diverse aquatic and terrestrial invertebrate fauna are

one of the primary reasons for the notification of the SSSIs. In 2014 an invertebrate survey of those areas affected by the scheme was undertaken by WG but failed to provide a sound basis for making decisions on the significance of the invertebrate fauna along the route of the scheme. Whilst some important aquatic species were recorded, the samples were uniformly less diverse than in other freshwater invertebrate sampling exercises conducted recently on the Gwent Levels.

- 6.266 This survey work commissioned in support of the scheme is inadequate as a baseline against which to assess the impacts. The recommendation for a future survey suggests that the 2014 survey was intended to be an initial reconnaissance exercise, with more detailed surveys to be undertaken in 2015. Only two of the recommendations for further survey have been acted on, at Newport Docks and Tata Steel sites. The 2015 surveys of these two sites showed them to have a rich invertebrate fauna, including many important species. These studies provide a satisfactory baseline for assessing the importance of these two sites.
- 6.267 The scheme would cause significant mortality and habitat fragmentation for invertebrates. Numerous studies have shown that roads represent a significant barrier to the free movement of invertebrates through increased mortality and/or behavioural avoidance. The scheme would therefore result in smaller and increasingly fragmented populations of important invertebrates. Negative impacts would be felt most acutely by those species, such as carder bee, that require large areas of breeding and foraging habitat. Artificial lighting at the junctions would result in increased mortality and reduced breeding success of many nocturnal invertebrates. The road surface and associated motorway structures would prove attractive to flying aquatic insects, thus leading to increased mortality and reduced breeding success. Polarised light pollution can be exacerbated by reflecting off smooth surfaces and research suggests that polarised light pollution from roads may lead to increased mortality and disruption of natural activity patterns that result in lower reproductive success.
- 6.268 The polluted discharge from the water treatment areas would be detrimental to the aquatic invertebrate fauna. There is also additional concern as cumulative impacts would result from existing pollution arising from development in the area. A single severe pollution event could cause serious damage to invertebrates and potentially cause local extinctions as many freshwater invertebrates are known to be very sensitive to pollution.
- 6.269 Mitigation measures need to address the specific requirements of the nationally important invertebrate assemblage. There are no specific proposals for invertebrates within the mitigation areas and there is no monitoring of the impact that mitigation measures might have on invertebrate fauna. The poor quality of the 2014 surveys provides an inadequate baseline from which to assess the response of invertebrates to mitigation.

WG response

- 6.270 A total of 45 different locations were surveyed for invertebrates on three separate occasions in 2014. The majority of the sites were specifically selected owing to the presence of habitats likely to be of some value to invertebrates. The majority comprise reens and ditches including their bankside habitat, thus reflecting the importance of reen species in the SSSI citations. Many of the locations that Mr Boyce considers support fewer species than he would expect were likely to be either field ditches and/or were covered with common duckweed or choked with other vegetation. In both cases, a lower diversity of invertebrates would be unsurprising. Such features, however, represent a significant proportion of the watercourses on the Levels, hence the inclusion in the survey. In addition, previous invertebrate surveys carried out by Mr Boyce and others have been covered in the baseline assessment. Further surveys were carried out in 2015 as described by Mr Boyce. The surveys represent an extensive set of data on which to base an assessment of the likely impact of the scheme on invertebrates, especially when considered in parallel with the detailed SSSI citations.
- 6.271 The fact that only two areas were surveyed in 2015 was agreed with NRW and the survey was targeted in line with their recommendations. NRW also agreed that a further aquatic invertebrate survey was not necessary and all reens and ditches within the SSSI boundaries were considered capable of supporting the individually qualifying invertebrate assemblage of each SSSI.
- 6.272 The ES recognises that the new section of motorway would represent a barrier to the movement of carder bee and other terrestrial invertebrates. However, in the context of habitat creation which would be of value to invertebrates, including extensive species rich grassland on the south facing road embankment and new habitat within the SSSI mitigation areas, this is assessed as not significant.
- 6.273 Lighting of the road has been kept to the minimum necessary for road safety. Otherwise the motorway across the Gwent Levels would be unlit. As part of the additional mitigation, the lighting would be designed to minimise light spill outside the motorway carriageway. In particular, care would be taken to avoid lighting of the approaches to and the entries of culverts and mammal crossings beneath the road and nearby habitats, including watercourses/water bodies, water treatment areas, woodland and scrub. The ES recognises that some night flying invertebrates would still be attracted by the lighting and their behaviour disrupted.
- 6.274 Pollution arising from the water treatment areas would not be a significant issue. Water quality would be acceptable for the protection of sensitive aquatic organisms. Mitigation for the nationally important assemblage of aquatic invertebrates would be provided through the reen mitigation strategy. Effective monitoring is included as part of the environmental commitments.

Ms Lindi Rich on the drainage strategy/ pollution of the River Ebbw SINC (written submission)

- 6.275 The ES does not provide evidence that the water treatment proposals would be able to maintain acceptable water quality across the Gwent levels or assess the risk of cumulative impacts exacerbating the existing pollution problems on the Levels. The ES incorrectly states that road run-off would discharge to the main NRW reens where there is greater flow of water. Experts such as NRW and Mr Pickup (previously of the Levels Drainage Board), both state a strong preference for discharge to NRW main rivers. The scheme should have been designed from its inception to discharge to main rivers. There would be a significant risk of pollution build-up in the reen system, due to little or no flow particularly in summer. Some reens and ditches in the vicinity of outfalls are also dead ends, this would increase the risk of pollution. The risk assessment used was designed for outfalls into a river system and does not adequately evaluate the risks of outfalls into a man-made system of reens, ditches and sluices where flow rates vary considerably and can be as low as "no flow". The actual efficiency of the water treatment system has not been predicted, instead average figures are used. No account has been taken of existing pollution in the system as a result of previous developments. It would only take one severe pollution event to cause major ecosystem damage.
- 6.276 The designers have given inadequate consideration to the risk of overtopping of the water treatment grass channels which are typically located only 1 m from the edge of the low embankment next to the SSSI. There can be no guarantee that the water treatment system would be properly maintained in the long-term and, as such, the risk of elements of poor maintenance resulting in significant SSSI damage cannot be ruled out. The Gwent Levels would therefore be permanently at a non-acceptable risk of pollution. The water treatment risk assessment has not considered the worst-case scenario in its assessment of water treatment efficiency and likely impacts on the reen system and therefore the SSSIs. It is proposed to use material from Llanwern steelworks as fill under the motorway. This contaminated material would be another potential pollution risk in an already complex situation.
- 6.277 The scheme as proposed would result in significant direct water pollution to the River Ebbw SINC and River Usk SAC, which feed into the Severn Estuary SAC. The following issues have been identified:
- the River Ebbw is already exceeding water framework directive limits
 - the scheme development has not provided a baseline monitoring point in the lower Ebbw to determine the current levels of pollution against which future impacts of the scheme can be assessed
 - the scheme is proposing minimal mitigation for pollution in the Ebbw in the form of oil interceptors

- it is unclear if an oil interceptor would be provided for the River Usk
- the proposed outfalls into the River Ebbw would therefore result in cumulative impacts and likely exceedances
- the lack of the pollution control lagoon for the River Ebbw outfalls leaves the Ebbw (which flows into the River Usk SAC) with no emergency provision for dealing with accidental spills
- the scheme has used incorrect data in its risk assessment for the River Ebbw outfalls
- the River Usk outfall has been designed to take heavily polluted water across a piece of land proposed as a saltmarsh habitat mitigation area, thereby putting wildlife at risk, and
- there are additional risks of release of pollutants from the riverbed and banks, and cumulative impacts from existing developments which have not been thoroughly investigated.

6.278 A further preconstruction baseline sample point should have been established in the lower Ebbw and the scheme redesigned to ensure pollution issues do not compromise either river, resulting in further exceedances of Water Framework Directive limits. The risk assessment needs to be recalculated as a result of the error and if results are amended, the proposals for outfalls on the Ebbw and their impact on the River Usk would need to be reassessed and the proposals modified. Consideration of the impact on associated pollution sensitive species such as the otter is also deficient.

WG response

The drainage strategy/ pollution of the River Ebbw SINC

6.279 The issue raised that road run-off water would discharge to smaller reens and ditches is not relevant. The water quality SOCG with NRW concludes that the assessments have provided evidence to conclude that, whilst small increases in concentrations are predicted, the risk of breaching NRW pollution standards is very low and therefore unacceptable impacts on the Gwent Levels ecosystem from the scheme's proposed treatment drainage discharges are unlikely.

6.280 The Highways Agency Water Risk Assessment Tool assessments have correctly accounted for low flow and the presence of sluices. The presence of sluices would not present a risk of sediment accumulation within reens. Furthermore, the sediments in reens in the vicinity of the water treatment area discharges would be tested for heavy metals and hydrocarbons on an annual basis for five years, as part of the surface water monitoring protocol agreed with NRW. Any sediments breaching limits would be removed and disposed of at an appropriate disposal facility.

- 6.281 The environmental commitments provide for effective design to maintain hydrological connectivity of the reens systems during construction and operation. Maintaining connectivity of these reens following construction of the scheme. WG response has been addressed with NRW, within the reen mitigation strategy. The proposed WTA discharges would function as designed and the discharges would not be significantly affected by dead ends in the reen network.
- 6.282 NRW have agreed that the design and assessment of the water treatment area stages deals with the concerns raised about the requirement to discharge at a rate and quality compatible with the Gwent Level SSSIs. This also addresses the point regarding heavy metals at some locations and cumulative effects.
- 6.283 The proposed drainage system would be designed to a very high standard with four elements designed to arrest and attenuate water flow consisting of:
- grass-lined channels,
 - pollution control lagoon,
 - an attenuation lagoon, and
 - a constructed reed-bed.
- 6.284 This level of treatment is unmatched by existing systems in use on existing highways in the UK. The water treatment areas would control flows, even after spills and extreme events, to ensure that potential pollutants would be within acceptable limits for invertebrates. The grass-lined channels and lagoons have been designed to cope with a 1 in 100-year flood event, plus 30% allowance for climate change. The hydraulic modelling takes account of "summer penning levels" on what is an already highly regulated/controlled drainage system across the Levels. Some outfalls are located on the same reen, but not so close together as to cause WG or NRW any concern. However, a cumulative assessment has been completed for these reens. The results show an acceptable outcome.
- 6.285 The risks from using material from the Llanwern steelworks lagoons have been assessed in the ES. The risks of infiltration affecting the quality of groundwater are considered to be negligible due to the low infiltration rates and the fact that the substrates are not aquifers. The risk of contaminants leaching from the material within the motorway embankment (once constructed) would be very low. This is due to the low permeability of the road surface and compacted embankment fill. The material would be tested to ensure its suitability for re-use, subject to supervision by NRW and the local authorities.
- 6.286 Lower levels of pollution control are necessary in the tidal outfalls of the Ebbw and Usk. This has been agreed with NRW in the SOCG and control measures would be provided. Water pollution to the rivers as a result of

the scheme is not a risk.

Mr Iolo Williams (written statement)

6.287 Mr Williams loves the Gwent Levels and is furious at WG's plan to construct a motorway through this protected area. In his view it is government-sponsored ecocide (extensive damage and, destruction to a non-human life).

6.288 The Gwent Levels are one of the jewels in the crown of Wales, with immense cultural and historical significance. This rare and complex wetland habitat is nationally important for its wildlife and is protected by national designations that encompass very rare water beetles and other aquatic bugs and wetland plants that live in and around the area's network of reens and ditches. There is an impressive list of animals that live there, including water voles, otters and eels and the Levels is the only place in Wales where cranes have bred for the first time in 400 years. The Levels are unique in Wales and only parts of East Anglia and the Somerset Levels are of similar character in the UK.

6.289 The scheme would directly destroy four SSSIs that make up this Welsh jewel. The direct effect on 125 ha of land-take and fragmentation would be immense and unprecedented in Wales. Added to that would be the indirect effects and fragmentation, leaving the northern part of the Levels vulnerable to further development.

6.290 The mitigation proposed would not work because it involves:

- replacing ancient and irreplaceable eco-systems with freshly dug holes and planting at a replacement ratio of 1:1
- a replacement ratio that would not account for the massive time-lag and high failure rate involved
- putting pipes under the motorway and hoping that dormice, otters, water voles, bats and bugs would use them, and
- allocating all mitigation into three established areas for wildlife (two of which are already within the SSSI).

6.291 The area is important for people and history.

6.292 Building more roads only encourages more traffic. Much of the Gwent Levels has been lost to development. This scheme does not make economic, financial or environmental sense. Instead of building roads we should invest in smarter choices such as travel planning, car reduction policies, telecommunications, cycling, bus and rail.

6.293 Wales' unique selling point is the WCFG 2015 Act the contents of which should be implemented.

WG response

- 6.294 The ES acknowledges the importance of the Gwent Levels and clearly identifies the magnitude and significance of effects on a wide range of environmental and cultural features and assets. WG evidence provides a summary of the likely impacts and benefits of the scheme and concludes that there is a compelling case in the public interest for the scheme to proceed.
- 6.295 The measures to mitigate for the impacts on the SSSIs are set out in the SSSI and re-en mitigation strategies. The ratio for provision of new reens has been agreed with NRW. Anything greater could have had an adverse effect on the hydrology of the Levels. The SSSI mitigation strategy sets out the measures proposed to convert existing arable land to grassland and to enhance existing grassland habitats of the Levels. The measures proposed are not novel and there is no reason to doubt their success. The arrangements for after-care management have been agreed with NRW. The proposed mitigation measures have been carefully considered and designed and, where applicable, accord with the accepted guidance. Mr Williams has offered no evidence to cast doubt on the effectiveness of the proposed mitigation.
- 6.296 However, the ES acknowledges that there would be significant adverse effects on the Gwent Levels SSSIs as a result of the land take, even after mitigation.
- 6.297 The point regarding new roads only encouraging more traffic is dealt with elsewhere. The point regarding possible future development on the northern part of the Levels is not a matter for this Inquiry. Any future applications would be considered against the relevant planning policies and allowing the scheme to go ahead would not set any precedent for such development.
- 6.298 WG evidence explains the background to the scheme, including alternatives previously considered. It explains how WG is progressing the South Wales Metro, which is a vital part of the vision for an efficient and integrated transport network. The economic impacts of the scheme have been presented. WG has also presented evidence on the sustainable development principle set out in the WBFG Act 2015 and the scheme's compliance with that principle.

EcoSystem Services Report (ESR) – evidence on behalf of GWT

Professor Maltby (written statement) (ID 219 & ID 252)

- 6.299 Reference is made to the value of wetlands for conservation and the benefits they bring to Wales and human well-being. Many are protected as SSSIs and are in an unfavourable condition as a result of human activity. Professor Maltby drew attention to the wise use of wetlands under the Ramsar Convention, which applies to all wetlands not just designated sites. The use of the Gwent Levels for a motorway is not wise use and might be considered a breach of the UK's obligations. The fact that the SSSIs in this case are in an unfavourable condition should not be

used as the baseline for the assessment. Otherwise this shows that WG is not prepared to fulfil its legal requirements to maintain them in a favourable condition¹¹.

- 6.300 The limitations of the ESR could and should have been addressed by a site-specific evidence base through survey and other work rather than the benefits transfer approach adopted by WG. The variations/diversity within the different SSSIs has not been recognised. There has been no survey of stakeholders in the area. This is a critical omission and relevant studies on the importance of value to stakeholders have not been referenced either.
- 6.301 It is unsafe to base any monetary valuation of a particular wetland on values derived elsewhere as has been done in the present case by benefits transfer. Monetary valuation should always be seen as an additional tool and not a replacement for ecological, social and cultural values in decision-making. Any valuation is subject to uncertainties due to variations among wetland ecosystems, interrelationships (both synergy and trade-offs) between different services and the reliability of benefit transfer functions. In this case, the value of the biodiversity and related features of the SSSIs might be considered too important to people locally, nationally and internationally to attempt any monetary expression of that value.
- 6.302 The reliance on the proposed mitigation strategy is misplaced. Such mitigation is prone to failure and significant time lags before operating effectively. There is too much reliance on further guidance and advice to give confidence in the measures proposed. Professor Maltby refers to his own experience of lack of success in transferring substances and materials (Klotzli and Maltby 1983). The proposed mitigation features within otherwise unaffected areas of the SSSIs risk further degradation rather than a net gain as implied in the report. The construction of the motorway through the wetland SSSIs cannot with any reasonable certainty maintain and enhance biodiversity even with mitigation; nor promote ecosystem resilience; nor further the detailed conservation objectives for which the sites have been designated. The scheme fails the legal requirements of the Environment Act and the Wildlife and Countryside Act. It would set a dangerous precedent.
- 6.303 The combination of managed landscape with the reens and ditches amounts to the special character of the Gwent Levels. The grassland is a priority habitat as defined in the Newport City Council Local Biodiversity Action Plan. The interest is not just the reens and ditches.
- 6.304 Professor Morris provided comments on his methodology as used by WG in the ESR, as part of the above documents. It is appropriate for high level assessment. A judgement needs to be made whether the potential impacts of the scheme through the Gwent Levels are such that a site-

¹¹ See duties under environmental legislation set out above.

specific assessment would be appropriate. The categories used do not exactly align with those now commonly used for ecosystem services accounting. The way in which cultural services are defined has evolved over the last decade. Caution needs to be exercised in using the methodology at individual project scale. Where there are potentially significant local effects, a case specific itemised service flow is advisable.

Further evidence and comments from Mr James Byrne (ID 217)

- 6.305 Mr Byrne is an adviser to the Future Generations Commissioner and worked on the development of the Well-being and Future Generations Act and the Environment (Wales) Act.
- 6.306 He also refers to the importance of ecosystem services to well-being and quotes the values ascribed in the National Ecosystem Assessment. The benefits of such services that would be lost as a result of the scheme have not been included in the BCR, contrary to the UK Government's Green Book economic guidance.
- 6.307 There are serious methodological flaws with the ESR. No empirical studies or consultation with stakeholders was undertaken, contrary to CIEEM guidelines published 2 years ago. Studies of public perception of SSSIs and willingness to pay for them were ignored. There was more public opposition to than support for the scheme at the consultation stage in 2014, despite misleading WG information at that time. Reference is made to a case study related to Camley Street Park (0.83 ha in area), near King's Cross Station in central London. Despite this evidence and UK reports on the value of cultural services, no economic analysis of cultural values was undertaken.
- 6.308 The scale of this scheme and the effects on SSSIs means that a local study of values for the range of impacts should have been undertaken; instead of relying on benefits transfer of values taken from other studies. Many GWT witnesses have disputed the effectiveness of the proposed mitigation¹². It would not work and there would be significant time-lags. There will be many other developments in the Gwent Levels across the 100-year timespan of the ESR.
- 6.309 The ESR uses as its baseline the fact that the SSSIs are in an unfavourable condition (see Maltby above). This assumes that the efforts of NRW, GWT and RSPB to improve the SSSIs would fail. The Living Levels project has achieved major lottery funding to work with local people, organisations and farmers to reconnect them to their landscape and increase wildlife friendly management. The economic benefits of this project were recognised by the Minister in welcoming the funding announcement.

¹² Mr Byrne refers in particular to the evidence of Professors Maltby and Lawton and Mr Pickup and his own evidence related to studies on this topic.

6.310 The monetary figures quoted based on the study by Morris and Camino (2011) are very conservative when compared to those for Camley Street Park. The use of low marginal values because only 3% of the SSSI land area is affected, is highly questionable. The total land area for the 4 SSSIs directly affected should have been used. This would give an equally plausible figure for the disbenefits of between £297m and £522m. The Green Book states that these disbenefits need to be brought into any assessment and should not be ignored simply because they cannot be easily costed.

WG response to Professor Maltby and Mr James Byrne

6.311 Concerns about ascribing a financial value to ecosystem services have been addressed by using figures based on studies that have used methodologies such as the willingness to pay. In addition, an extensive qualitative analysis of the changes in numerous different ecosystem services was also undertaken and reported. This enables the decision-maker to consider all aspects of the scheme, including the likely implications for ecosystem resilience.

6.312 No site-specific analysis was undertaken because the aim was to provide evidence on the likely impact of the scheme on ecosystem services. The monetary values in Morris and Camino for wetland habitats in Wales were used as they "*provide the most appropriate benefit transfer function for the UK case*¹³". Given the widespread acceptance of the use of this approach in relevant studies, it was considered that this approach was the most appropriate¹⁴. It provides a method for a process that is not legally required and has no set methodology. In addition, the environmental data was collected prior to the issue of the CIEEM guidelines. There is no guarantee that there would have been a significantly different result and certainly not one that would have significantly affected the BCR for the scheme.

6.313 The CIEEM guidelines referred to state that Ecological Impact Assessment can be used, but the guidance does not specify or require such an assessment to inform the Environmental Impact Assessment process. The guidelines recognise the benefits of nature to society and human well-being, but do not recommend or require the use of an ecosystem services approach to Ecological Impact Assessment.

6.314 The ESR is likely to have over-estimated the value of the Gwent Levels because it has used the figures for coastal wetlands even though the Gwent Levels characteristics are closer to inland marsh. This is a precautionary approach as the figures for coastal wetlands are much higher. In addition, the benefits transfer calculations have been based on

¹³ Morris and Camino 2011

¹⁴ This approach was indeed used by Mr Byrne in his estimate of the value of ecosystem services provided by the Gwent Levels

the total area of SSSI land lost rather than just the ecologically valuable reens and ditches. This is why it was not appropriate to divide the SSSIs into separate habitats, as this would not reflect the way that the Gwent Levels function as an ecosystem.

- 6.315 It is essential that mitigation is taken into account as it is the end result that is being assessed. GWT's comments on mitigation have been addressed previously. In summary, the vast majority of the habitats lost to this scheme would not be difficult to recreate. There would be a time lag before the mitigation would mature and function and that has been allowed for in the ESR.
- 6.316 The Camley Street Park figures are not an appropriate comparison because this example related to a small park in central London where there is a very high population density. This leads to a much higher valuation per hectare than the extensive Gwent Levels in Newport. Mr Byrne's approach to the monetisation of the indirect effects of the scheme by multiplying the marginal value by the total area of the four SSSIs is totally inappropriate. Clearly the most significant element by far is the direct loss of habitat. Indirect effects are included in the qualitative assessment. The figures quoted by him do not apply a discount rate as required by the Green Book. If this is applied his figures reduce to between £112m and £209m.
- 6.317 The baseline used is immaterial to the assessment, the purpose of which is to consider the long-term effects of the scheme on ecosystem services provision in the area (especially the Gwent Levels), irrespective of the baseline conditions.
- 6.318 The scheme would meet the definition of the wise use of wetlands supplied by Professor Maltby. It achieves this by the embedded mitigation of the siting as close to the northern edge of the SSSIs as possible; by ensuring that water quality and flow would not be adversely affected and by an ambitious mitigation and restoration plan that would see a net gain in valuable reens, ditch and grazing marsh habitat in the 3 extensive SSSI mitigation areas. While the Gwent Levels SSSIs are clearly a wetland area, the important wetland elements (reens and ditches) are scattered amongst large areas of less ecologically important habitat, in particular improved grassland and arable land.
- 6.319 The ESR estimates losses at £6m and benefits at £7.7m over a 100-year period. As the same monetary values were used the net change is independent of them. A proper degree of caution has been exercised in the production of these figures, unlike GWT, who have not carried out any assessment of their own, but rather criticised WG methodology and gave no basis for their quoted figure. This exercise in qualitative and quantitative appraisal demonstrates that the Scheme would not be the environmental disaster that is claimed by objectors. It would in fact benefit ecosystem services over time.
- 6.320 WG evidence should be preferred because no GWT witness was called to

give evidence or have it tested at the Inquiry. Remarkably, Professor Maltby (not having heard Mr Davies' oral evidence) states that he stands by his evidence. But this evidence is contingent and expressed in terms that the use of benefits transfer may be quite unsafe. Neither he nor Professor Morris responds to the point that WG has not been able to find an ESR that does anything else.

- 6.321 Professor Morris only goes as far as saying "*A judgement needs to be made whether the potential impacts of the scheme through the Gwent Levels are such that a site-specific assessment would be appropriate*". The ESR team has made that judgement, had it tested in the Inquiry and amply justified it.

Non-Statutory Objectors who attended the Inquiry

Mr Robert Waller (0707) - Wildlife Trusts

- 6.322 Mr Waller, a member of Gwent Wildlife Trust submits evidence on behalf of them, himself and other Trusts as well. In his opinion, a new motorway is not needed. The current problems on the M4 could be addressed by small-scale road improvements, a significant boost to public transport and a closure of some motorway junctions that currently facilitate commuting access*.

*Inspector's Note

This effectively is the basis for Alternative 19.

- 6.323 Private traffic surveys undertaken by Mr and Mrs Waller show that, in his view, between J24 and Tredegar Park J28 the motorway operates well during peak hours from Mondays to Thursdays, with average speeds varying from 66 mph to 24 mph, with an overall average of about 47 mph. He also considers that the general variation in travel time from day-to-day of 7-16 minutes is acceptable for an urban motorway and compared to the national average, the accident rates on the M4 near Newport are not problematic. Mr Waller accepts that pollution is an issue but even if traffic were halved he believes that would still be a problem.
- 6.324 The scheme has been advanced on the basis of uncertain traffic forecasts, with growth potentially flattening out in future. Any decision on the costly scheme should therefore be deferred. Traffic reducing improvements to public transport in South Wales, including railway electrification and the Metro, have not been taken into account in the forecasts. The relative volume of local traffic using the M4 is not known**. There appears to be a discrepancy in Figure 10.15 of the Revised Traffic Forecasting report in respect of flows west of J29 instead of J28 (CD2.4.13).

Inspector's note

** *In pursuit of this point Mr Waller requested traffic model outputs to identify the amount of local traffic that uses the existing M4 around Newport. Following my agreement on that request, WG addressed the issue by the submission of PIQ/086. Mr Waller*

thereafter requested further information from the traffic model using an alternative definition of local traffic. That was provided to the Inquiry by WG through the submission of PIQ/110.

- 6.325 The economic case for the scheme has been exaggerated on grounds of over-estimated traffic and wider benefits that would not occur. The calculations use a national value of time which is too high for South Wales. International and UK studies support the opinion that the scheme would not produce a major economic boost for the region but it would severely damage the environment of the Gwent Levels, a landscape scarred by earlier development. The cost of ecological damage has not been calculated. Currently Newport opens out onto wonderful peaceful countryside but, by squeezing it between two 6-lane motorways, its "city-sense" would be lost.
- 6.326 Alternatives based on less damaging, enhanced and better public transport should be promoted. No road should be approved until details of the Metro are made public but an increase in the frequency of trains, building a light-rail scheme with new stations and a new Newport rapid-transport scheme linked to employment sites and the City Centre should be advanced together with appropriate walking and cycling facilities. The existing junctions on the M4 should be closed and to compensate for that the local authority roads could be improved. Modern (smart) motorways in England, with no hard shoulder but CCTV coverage, work well and minor improvements from Magor westwards, together with a ban on local commuting movements, would make the M4 operationally acceptable.
- 6.327 Unlike driving, travelling on public transport is not "dead time". Local road improvements, including the closure of J27 of the M4 and the enhancement of capacity on the SDR roundabouts for local traffic should be undertaken. However, the SDR Blue Route should not be part of an M4 solution but reserved for internal town travel purposes.
- 6.328 Should these public transport and highway measures fail to deal with the current or future problems, additional tunnels at Brynglas could be constructed. That would be difficult and involve the demolition of property but it is understood that local residents would welcome their homes being demolished and compensation paid.

The further evidence of Mr Waller after the announced removal of Severn Crossing tolls

- 6.329 The increased traffic arising from the complete removal of tolls may be overstated relative to the current position or the halving of them because:
- the impact of the toll removal is likely to arise from changes to relatively local journeys, particularly journeys to work
 - there is a current trend of people working in Bristol buying houses in South East Wales but house prices would equate over time and reduce commuting across the bridges, and

- the significant cultural differences between the Bristol and Newport areas would restrain social and cultural linkages between the areas.

6.330 At Brynglas, toll removal would increase the morning peak flows in both directions combined by only 2%, whilst in the evenings they are forecast to reduce by 2%. Closer to the bridges forecast flows may increase rather more but that is of little interest as those stretches would largely remain free flowing. It should therefore be concluded that overall the removal of tolls would bring no significant changes to congestion on the M4 around Newport during the critical peak periods, because off-peak traffic is free-flowing.

6.331 The scheme has been justified on central growth assumptions which are now questionable given:

- the latest forecast of static real incomes in post Brexit Britain
- the reduction in diesel vehicle sales
- rising interest rates
- the latest population projections for Wales which show a 4.2% decrease in the number of residents aged between 16 and 64
- environment policies that could encourage more green forms of travel
- the likelihood of future government measures to control vehicle use.
- the inadequate account of effects of measures to improve public transport such as rail electrification, the Metro and flexible taxi services, and
- the recent proposal for a private-sector Cardiff Parkway station at St Mellons.

6.332 The UK Government has recently announced that the sale of all-new diesel and petrol cars and vans will end by 2040 and as that is now government policy, it is obligatory for the Inquiry to take it fully into account. There will be a gradual decline in the sale of new vehicles to be replaced either by alternative fuel engines or by increased use of public transport, cycling and walking. The policy would increase the cost of motoring and hence there would be lower traffic flows. It also increases the relative attractiveness of alternative modes. The traffic forecasts should be reworked on that basis.

6.333 The latest results in the 2018 national travel survey should also be considered. The key findings are that the total number of trips per person per year increased from 1975 until 1990 but has fallen since 1995. The total distance travelled per person per year increased by 52% between 1975 and 2003 and subsequently reduced by 8%. The distance travelled

by all forms of motorised transport has also fallen by about 13% since 2003 and the reduction since 2003 has been most marked for car use. Use of surface rail is more than doubled over that period. In Mr Waller's belief this reinforces his view that WG has wrongly applied its traffic forecasting leading to a seriously exaggerated prediction of traffic increases. It is completely realistic to envisage a much-increased use of public transport in the Newport area given that surface rail travel has doubled in England over the last 15 years.

6.334 With regard to the revised economic appraisal, following the decision to remove the tolls on the Severn Crossings and the extra cost that would be incurred at Newport Docks, it is noted that the considerable environmental and wildlife impacts have not been included as a cost while some spurious and hypothetical impacts on the economy have been included as a benefit. It is noted that the alleged benefits are highly dependent on a view of the world that sees increasing road capacity leading to increased economic growth and that the Welsh economy suffers from a shortage of road capacity, a view debunked by Professor Calvin Jones in his evidence.

6.335 It appears that the estimate of costs associated with the necessary works within the Newport Docks have been fiddled in an attempt to downplay the escalating cost of the scheme. The propensity of major capital scheme costs to overrun and the recent estimated reduction of risks exposes the uncertainties of the overall scheme estimate. The risks should not be written off until the road has been constructed and is operational. Even when building works have finished an element of risk would remain and some financial resource should be held back to cover it. That is particularly the case since the road would run over marshy ground with lots of embankments and difficult and innovative bridge works through the docks.

6.336 It is not clear how the £17.5 million of reduced risk has been derived. It is also not clear how the benefits from the delay in the opening of the scheme from 2022 to 2024 have actually increased (as opposed to reducing) because of the lost yearly benefits. It is therefore essential that an independent consideration of the cost benefit analysis is undertaken by people who do not have a vested interest in the outcome of the investigation.

6.337 A number of economists are currently developing a measure of sustainable GDP growth which would be lower than the currently defined GDP which does not include environmental externalities, changes in the value of assets, such as the loss of biodiversity and unpaid work. On this basis the benefits of the proposed scheme would be significantly less.

WG response

6.338 The effect of the scheme on the environment is set out in the ES and its Supplements, which acknowledge the importance of the Gwent Levels and the significant effects of the scheme on the area.

- 6.339 Up-to-date accident records show that some sections of the M4 have a lower collision rate than the WebTAG average for links and junctions combined, whilst from junctions 24 to 25 and 26 to 27, the rates are higher.
- 6.340 Mr and Mrs Waller's measured journey times are consistent with those predicted from the traffic model, but research shows that, when speeds drop below 50 mph, stop-start conditions occur and speeds drop very quickly thereafter. That is evident on the M4. Such conditions lead to drivers diverting from the motorway into Newport, which is ranked 16th in the top 25 cities in the UK experiencing congestion. In other words, the demand for travel along the M4 already exceeds the motorway's ability to carry that demand, causing drivers to divert onto local roads. This widespread congestion and persistently low speeds, as illustrated by table 3.2 of WG 1.2.1, needs to be taken account of in assessing the worth of the scheme.
- 6.341 Contrary to the perception of objectors that motorway traffic growth is abating, it is an established fact that traffic has grown steadily on the M4 in recent years. The DfT's latest forecasts indicate that growth would continue. It is not accepted that the Revised Traffic Forecasting Report is wrong, as explained in detail in PIQ/107. All currently programmed public transport schemes have been taken account of in the traffic model, which still indicates a clear need for the scheme (WG1.2.1).
- 6.342 Smart Motorways in England all meet strict criteria in terms of horizontal and vertical geometry and forward visibility. The M4 at Newport falls short of visibility standards, is physically constrained by structures and does not have continuous hard shoulders, all of which would render its development into a smart motorway impracticable. Mr Waller has not put forward any specific local authority road improvements which he says may be needed if the existing junctions on the M4 are closed or explained the environmental consequences of doing so.
- 6.343 The economic appraisal for the scheme has been undertaken fully in accordance with national guidance and is consistent with other proposed transport schemes in Wales and England. Both the economic appraisal and the wider economic impact assessment have been reviewed internally by Professor Helen Bowkett at WG. In accordance with WebTAG and WelTAG guidance the economic appraisal of the scheme was based on UK average values of time which have been reviewed and confirmed by the Department of Transport recently. Using relatively low incomes in Wales to determine the value of time would not fully reflect the Department of Transport's position. For this and other reasons it is appropriate to use only national guidance**.
- 6.344 It is not accepted that the scheme would provide no economic benefit to peripheral areas as a result of shifting activity to more accessible areas on the coast, or in England. There would be multiple economic benefits arising from the scheme. It would reduce transport costs, increase productivity through agglomeration effects and, by reducing peripheral

reality, improve the functioning of the labour market that influences business location and investment decisions. Because of the role and importance of the M4 as the primary route in and out of South Wales there is good reason to conclude that the scheme benefits would be widespread. The most visible economic effects would be felt in Newport and along the M4 corridor but economics would not be constrained by administrative borders. Some 40% of jobs located in Newport are filled by residents living outside the city. That, and because of the close interconnected nature of the South Wales economy, means that it would be wrong to suggest that people in other areas of South Wales would be worse off as a result of the proposed M4.

- 6.345 It is accepted that the Department of Transport is updating and restructuring its wider economic impacts guidance but the emerging guidance states that it is anticipated that with the vast majority of projects, the new guidance will not lead to material change in the methods used for appraisal as the existing guidance covers the main economic impacts relevant to most transport investments. It is accepted that agglomeration effects would not happen from day 1 and that it would take time for such benefits to be realised.
- 6.346 The impact of the scheme on the environment would be a highly complex and nuanced issue. Trying to reflect those impacts in any cost benefit analysis would be spurious. It would not assist decision makers when weighing up the costs and benefits of the scheme in an overall sense.
- 6.347 The scheme and its construction would be undertaken and managed in accordance with the obligations and requirements of environmental legislation, policy and environmental regulatory authorities and third parties. The conclusion drawn was that the scheme would not have an adverse effect on the integrity of the River Usk SAC, the Severn Estuary SAC, SPA and Ramsar site or on the Wye Valley and Forest of Dean Bats Sites SAC, either alone or in combination with other projects or plans. There is no disagreement with NRW on any of these matters. It would severely impact the Gwent Levels but that is offset by the widespread advantages it would bring to Wales.
- 6.348 WG evidence has taken account of the impact of the Metro, as outlined in the updated Public Transport Overview Report. Public transport, cycling and walking improvements would be relatively insignificant in removing traffic from the M4 (ID/073). The scheme has fully taken account the WBFG 2015 Act (WG2.4.19).
- 6.349 WG has also taken reasonable steps to maintain, conserve and enhance biodiversity, not just within the SSSIs of the Gwent Levels but throughout the footprint of the proposed scheme and any areas that would be affected by it. The overall mitigation strategy has been to optimise and minimise the land take and avoid key environmental assets wherever it has been practicable to do so. Mitigation measures requiring land are primarily for visual screening, landscape integration, and replacement planting for the purpose of biodiversity. These proposals are

appropriate and proportionate.

- 6.350 The proposal for additional tunnels at Brynglas, closure of existing junctions, online widening and other minor proposals have been considered thoroughly and reported to the Inquiry as alternatives.
- 6.351 The effect that the Metro would have on reducing traffic volumes on the M4 has been fully explored and it has been shown that a maximum of 6% reduction in M4 flows would arise by the construction of the Metro and enhanced public transport schemes, which themselves are some way off, whilst problems already exist on the motorway and are growing.
- 6.352 The scheme would run relatively close to the Newport southern boundary, but it would have an insignificant detrimental effect on the existing residential areas of Duffryn and those proposed adjacent to the steelworks at Glan Llyn. There would be changes in the landscape and townscape resulting in negative and positive impacts depending on the location and perception of the receptor.

WG response to the further evidence

- 6.353 The methodology to assess the implication on traffic flows on the M4 following the removal of tolls at the Severn Crossings is fully compliant with WebTAG and has been used in both the UK and Europe. Toll removal would lead to changes in individual behaviours by lowering the generalised cost of travel. In practice the full effect on traffic demand would take a number of years to play out. In this case, the removal of the tolls would result in a large reduction in the generalised cost of travel, when compared to highway improvement schemes, and therefore there is good reason to believe that the traffic from the toll removal would, to a greater degree than is usually the case, depend on longer term behavioural responses.
- 6.354 The traffic forecasts used are taken from the Department of Transport's national trip end model which produces estimates of person travel for all modes for each zone in Great Britain. The forecasts are based on a range of factors including the cost of driving, where people live, the availability of other modes, their employment, income and car ownership. They also depend on land use, the availability and costs of other modes and the levels of congestion. Future levels of population, employment and housing are taken from local authority LDP's and provide the most up-to-date view of those influences that contribute to future levels of demand for travel. It follows that the transport model has not overstated the impact of the toll removal and provides a robust assessment.
- 6.355 It is not the case that a lowering of tolls from half to no toll levels would lead to diminishing returns. There are two key reasons for that. First, when tolls are abolished drivers would no longer experience delays at the toll booths which would not be the case with the half toll situation and therefore the M4 would be all the more attractive. Secondly, drivers generally have an aversion to paying toll charges of any magnitude and

therefore the perceived change of lowering the toll to half its original value is less than the perceived change when moving from half tolls to abolishing the tolls altogether. Again, that would encourage more traffic onto the M4. On the basis of those factors the model outputs are correct in showing that a lowering of tolls from the half toll to no toll would trigger a higher increase in traffic flows across the Severn Crossings than the equivalent change in monetary terms from full toll to half.

6.356 The model reflects Mr Waller's view that the impact of toll removal would arise from changes to relatively local journeys. It is also agreed that the removal of tolls reduces the further away from the bridges one travels and that has been reflected in the scheme evidence updates set out in WG 1.2.7. The traffic model cannot take account of cultural differences but there is no evidence to support the view that cultural differences would lead to a depression in traffic movements across the Severn crossings which have stood in place for many years. However, should such a barrier exist, that will be reflected in the base year model from which future growth is applied. In any event the imposition of the toll would provide the main barrier to people wishing to travel across the Severn Estuary and removal of the tolls would be a positive contribution to aiding a social and cultural link.

6.357 It is agreed that the evidence presented to the Inquiry indicates that there would be negligible changes in forecast traffic on a number of the M4 links arising from the removal of tolls and in a number of instances traffic volumes would reduce at peak times on the M4. However, that is misleading. In 2037, the primary reason for the little change in flow or indeed a reduction in flow at Brynglas is a self-regulating *throttle* because the road would be at saturation which restricts throughput. Upstream of the tunnels traffic would be moving more slowly and some queueing would form which, in turn, leads to a secondary effect and consequence that some traffic re-assigns to alternative local routes thereby creating further congestion on the local network. This is evident. In the opening year of 2022 a more marked effect of removing tolls is forecast because the Brynglas tunnels, having been relieved, is not as close to saturation. Therefore, it is not correct to draw the conclusion that overall removing tolls would bring no significant change to congestion on the M4 and is quite the reverse. The toll removal brings significant further congestion. It is clear that the section of motorway between J23 and J23a becomes seriously congested by 2037 and that the proposed scheme addresses that section of motorway which, otherwise, would be a future pinch point.

6.358 In terms of Brexit, the Office of Budget Responsibility has confirmed that the effects are highly uncertain and that there is no meaningful way of assessing the impact. However, traffic growth projections for the M4 model have been taken from the Department of Transport's National Trip End model 7.2. The effect of changes in income and fuel prices is provided in that via the Department's National Car Ownership Projections model. The National Trip End model fixes the trip rates from 2016 onward as being flatlined thereafter. It follows that the forecasts are not very sensitive to income and car running costs and the decrease in forecast

population projections would not have any real significance on the demand for travel.

- 6.359 The economic appraisal only takes account of those costs and benefits that can be quantified but in any event the quantification of environmental impacts or "ecosystem services" has been assessed and reported to the Inquiry in response to Gwent Wildlife Trust. It was demonstrated that the value of the ecosystem services would have very little impact on the BCR for the scheme.
- 6.360 In regard to the criticism about the reduction of risk and optimism bias in the scheme estimate, it should be noted that the combined sums now allocated relative to the March 2016 situation have actually increased by £4.5m. Now that an agreement has been reached with ABP in respect of the works which are identified to mitigate the adverse effect of the scheme within the docks it is entirely reasonable that WG should update its risk assessment to reflect that. In other words, the risk has naturally fallen. That is logical because the scheme is now at a mature stage of development, clear agreements are confirmed and the process is at a later stage of the Public Inquiry. This means that the risks of a cost overrun are better understood and the level of uncertainty has reduced, as is normal in progressively assessing scheme cost estimates.
- 6.361 Mr Waller's observations about the effectiveness of GDP as a measure of economic welfare are not new and provide no new perspective on this topic. However, it must be pointed out that the economic appraisal of the scheme is a measure of economic welfare, not GDP and his arguments in respect of GDP are not relevant to the assessment of the scheme or any other highway project.

Inspector's note

**Following Mr Waller's oral request at the Inquiry, WG produced PIQ/086 which illustrated the percentages of local to through traffic using various sections of the motorway and advised Mr Waller of this document.*

*** Subsequently WG submitted PIQ/071 to the Inquiry in which it set out the relative wage levels across Wales and the South West of England in comparison with the national average wage.*

See para 6.322 and 6.231

Friends of the Earth (Cymru) - The evidence of Mr Gerald Kells (O125)

- 6.362 The case for the scheme is based on flawed, unproven and unrevised transport planning objectives dating from 2007. Apart from two hours a day, for around 150 days per year, the current motorway copes well. A package of road-traffic reducing alternative improvements to the existing motorway would remove 22% of the current traffic and would enable it to cater for the residual traffic until 2037. These should include:

- a set of public transport improvements, reducing traffic by 3%

- targeted marketing, on active travel and sustainable transport, reducing traffic by 11%
- mainline railway electrification and the South Wales Metro reducing traffic by 3%, and
- the partial closure of the J26 leading to and from the Brynglas Tunnels reducing tunnel traffic by 5%.

6.363 The approach of WG, based on “predict and provide”, has long been discredited as a valid means of transport planning. The approach has failed to consider reasonable alternatives to the building of a new motorway, including the Blue Route, in combination with the measures set out above. The consultation on the scheme has been inadequate.

6.364 The report commissioned by the Campaign to Protect Rural England on: *The Impact of Road Projects in England* exposes the effects of major road building and regard should be had to it (ID/044).

6.365 The unrealistic traffic forecast undermines WG’s rationale for infrastructure development. The proposed benefit, of a 4 to 9-minute saving for 6,000 vehicles a day, is not commensurate with either the proposed expenditure or likely environmental destruction. Studies have shown that the benefits which would accrue from the scheme would fall principally to wealthy men, whilst worsening the outcomes for those living in poverty. The introduction of speed control measures has already solved the accident problem on the M4.

6.366 The Sustainable Development Report is not fit for purpose. To conclude that the proposed scheme is sustainable, principally on the basis of the economic benefit that it would bring, is contrary to the word and spirit of sustainability. The scheme would induce more traffic to use the network.

6.367 The economic appraisal of the scheme is not fit for purpose and ongoing maintenance costs should have been included in it.

6.368 WG’s approach to allocating “medium” noise sensitivity to residential receptor is unique and unwarranted and contrary to the Planning Inspectorate, Highways Agency and Transport Scotland policies, which routinely classify residential receptors as being of “high” sensitivity to noise.

6.369 The analysis of potential pollution is deficient. The scheme would create a pollution problem, whilst solving none, because under the “do minimum” scenario air pollution is within legal limits at all human receptors by the defined opening year of the scheme. Pollution is an ongoing problem in Newport but is largely unrelated to the existing M4. The scheme would exacerbate potential flooding and therefore pollution in the River Ebbw SAC, a river that already fails against water quality criteria. The scheme would adversely affect wildlife, for example otters which are known to be present in the area.

Inspector's Note

Subsequent to his appearance at the Inquiry Mr Kells, on 3 July 2017, asked that any assessment of the worth of the scheme should take into account the 2017 House of Commons report on climate change – "Meeting Carbon Budgets: Closing the policy gap" and that the Inspectors should be made aware of that Report. At my direction, the Report was included as an Inquiry document (ID/100).

Following the decision to remove the tolls from the Severn Crossings and the substantial increase in scheme costs that would be occasioned by the late proposals of WG to undertake widespread works within Newport Docks, Mr Kells on behalf of Friends of the Earth Cymru and as a strategic objector sought permission to submit fresh evidence to the Inquiry in reaction to those new developments. He did so and reappeared at the Inquiry. His supplementary statement is summarised immediately below (ID 200).

Supplementary evidence by Mr Kells

6.370 Following the announcement about the removal of tolls and the supplementary evidence introduced by WG Mr Kells made three points:

- the impact of increased traffic on the network
- the resulting economic benefit assumptions, and
- the impact on climate change.

6.371 At the Inquiry, Mr Kells accepted that the removal of tolls is likely to increase overall traffic on the network but this has to be seen in the context of traffic growth on the whole network and the prospect of further induced traffic which would be amplified by this decision, for example by increasing the risk of congestion on the A48M and other roads. Removing the tolls might also encourage use of the park-and-ride site at Llanwern by travellers from Bristol and other areas beyond the Severn. That could encourage longer trips and deny spaces for more local use. The removal of tolls, over time, would exacerbate the network problems resulted from the scheme and so undermine any longer-term benefits.

6.372 Delaying the scheme by two years would increase traffic by 1.7%*. Whilst that sounds reasonable it may inadvertently exaggerate traffic growth in later years and hence economic benefit.

Inspector's Note

At the Inquiry Mr Kells accepted this should be 3.4%.

6.373 A further concern arises from the updated Economic Benefits Report, ID 173, on the following grounds:

- the exaggeration of traffic benefits as set out above, and
- the relation to the wider benefits which are set out in the updated Wider Economic Report. The report says that: *the scheme will have a substantially positive impact on the economy of South Wales which is further reinforced by the Government's decision to remove*

the toll from the Severn Crossings.

6.374 Friends of the Earth cannot see any specific evidence to justify this statement but there are reasons to question it because it would:

- conflate the impact of removal of the tolls with the proposed scheme
- assume any wider benefits from the total removal would not be offset elsewhere
- assume the benefits of the toll would accrue to the Welsh side of the border and not to the English
- not allow for the impact of induced traffic on the attractiveness of South Wales, and
- not consider whether alternative investment for example in public transport might be more effective in promoting the area.

WG response

6.375 The scheme forms an essential part of WG's vision and associated policies for an efficient integrated transport system in Wales. The National Transport Plan recognises that: *"for a long time there have been concerns about the section of motorway around Newport, which falls well short of modern design standards. These centre on peak-time capacity, safety and resilience of the local network"*.

6.376 Since the early 1990s there has been extensive engagement in considering the problems, objectives and possible solutions of the inadequate M4 around Newport. A wide range of options has been considered by a wide range of stakeholders, including consideration of a package of non-roadbuilding options. Public transport enhancement and the proposed South Wales Metro proposals have been taken into account and would be completely compatible with the scheme, thereby providing an efficient and integrated transport network for Wales. The proposed Glan Llyn and Magor junctions have been designed to include links to public transport park-and-ride areas, thereby encouraging a modal shift, and a new section of cycleway would be completed from Magor to central Newport. The scheme has been developed in collaboration with other plans for rail electrification and includes measures to promote cycling and walking (ID/122).

6.377 Congestion on the M4 currently affects the local roads in Newport, causing delays and making it difficult for those who rely on public transport. The scheme would enable employees to get to work by both car and public transport and it would make it easier for everyone to travel within and outside the city of Newport by road whether they use private or public transport. Reducing congestion on the M4 would provide better opportunities for people to access employment, education, training and social and other opportunities.

- 6.378 Friends of the Earth suggested that the closure of J26 east-facing slip roads could reduce traffic on the M4 by 5% but they fail to recognise that would simply mean traffic diverted onto other available junctions via less optimum routes. Such a measure would be counter-productive. The assertion that the potential of removing J26 has not been considered is wrong. Such a proposal was considered as part of an Alternatives Approach study (Measure 5 of that report-ID/046).
- 6.379 The scheme would benefit the economy and help attract investment to Wales, thereby benefiting social inclusion. About 79% of people in South Wales have access to a car, with the M4 being the most used road in Wales. A very wide area of south and south-west Wales is dependent on the motorway and therefore the benefits of the scheme would be felt over a wider area and benefit a broad range of people. In contributing to the economic prosperity of Newport and South Wales as a whole the benefits of improved economic performance would not be limited to those who would benefit directly from reduced transport costs.
- 6.380 It is recognised that the scheme would have an adverse impact on ecology but would be of benefit to a range of economic, social and environmental matters.
- 6.381 Funding for the scheme has been explicitly identified and provision set aside within WG's published capital plans for the next four years. Allocations beyond that period are not made but suitable forecasts are in place to enable assurance to be given that the full funding requirements associated with the project would be available within a reasonable timescale.
- 6.382 The traffic forecasts used to justify the scheme have not been overestimated although all forecasting is subject to some uncertainty. National methodologies and parameters have been used and an allowance has been made for a transfer from road to rail following the electrification of the South Wales mainline, together with some transfer onto the subsequent South Wales Metro. The analysis shows that the combined effect of the public transport improvement measures would be to reduce M4 traffic by a maximum of 6% in the PM Peak hour. That would not resolve problems on the motorway, the traffic on which is currently growing at a rate consistent with national motorway growth and is greater than 2% pa.
- 6.383 The latest national trip-end model central growth scenario has been used as a basis for the justification the scheme. It is based on the latest trip rate data collected in the trip rate review and assumes a declining trend in trip rates between its base year of 2011 and 2016 and then constant trip rates thereafter.
- 6.384 It is accepted that the scheme would induce extra traffic onto the network but that would be very limited and less than that which would be induced as a result of the removal of the tolls from the Severn Crossings. The details of induced traffic are set out in the report on induced traffic

ID/043 which indicates that about 3-4% of additional extra traffic would arise as a result of the scheme. That puts into context the relevance of the questionable conclusions of the CPRE report which is not pertinent to the scheme. The traffic model illustrates a reassignment of traffic from less suitable, more polluting routes onto a modern efficient motorway which would remove polluting queues from the M4 and the construction of which would reduce carbon-burn over future years (ID/043).

6.385 It is accepted that following the introduction of variable speed limits some sections of the M4 north of Newport have a lower than average link and junction collision rate. The sections which remain higher than the average link and junction collision rate are between junctions 24 and 25 and 26 and 27. However, given the physical inadequacies of the existing motorway alignment, its gradients and cross-section and the closeness of its junctions it is likely that accident rates would increase in future. Non-personal injury incidents on the motorway, which are not included in the statistics, are frequent on the M4 north of Newport.

6.386 The capital investment of the scheme represents good value for money for public investment and the scheme would have a substantial positive impact on the economy of South Wales from wider benefits. Investment in the scheme does not preclude investment in other transport projects or investment in other policy areas that may have a positive economic impact. The scheme has been assessed using the standard discount rates dictated by HM Treasury, rates that are applied in the appraisal of projects across all areas of public policy in the UK. Maintenance costs are included in the economic appraisal. With the new road in place heavy goods vehicles would switch from using the existing road to the new one and that would probably mean that maintenance would be required less frequently than on the existing M4. Such small benefits have not been taken account of in the economic appraisal.

6.387 Whilst the objector's reference to the spirit of sustainability is understood, it is important that the scheme is assessed in the light of the statutory duties and definitions contained in the 2015 Act. Section 2 of that Act defines sustainable development 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"*. Section 3 of the Act defines:

"doing something in accordance with the sustainable development principle as acting in a manner which seeks to ensure the needs of the present are met without compromising the ability of future generations to meet their own needs".

6.388 This definition recognises that development must take place in the present day to satisfy the needs of today's society, but that the form of that development should not preclude choices for future generations. The Act also sets out five ways of working that a public body must take account of in order to act in accordance with the sustainable development principle. WG has fulfilled that requirement by:

- thinking long-term,
- taking an integrated approach,
- involving a diversity of population,
- working in a collaborative way, and
- understanding and prevention.

6.389 The test to determine whether development is sustainable must answer two questions. First:

- has action been taken in accordance with the sustainable development principle, and second,
- does that action contribute to achievement of the well-being goals?

The scheme positively satisfies both questions and answers Friends of the Earth's criticism on the point of sustainability.

6.390 Using the most up-to-date traffic model and an updated VISSIM analysis shows that the scheme would lower carbon dioxide emissions by about 3% relative to doing nothing. Furthermore, there would be an overall carbon improvement on the wider network because the scheme would draw traffic away from less suitable roads, which suggests that the overall improvement in the generation of carbon is better than the models predict.

6.391 It is accepted that there would be sites where wildlife could be subject to disturbance from the operational motorway but that would be of minor adverse significance. Recent studies have shown that otters often continue to use rest sites and watercourses local to and for the duration of the works, even works involving major excavations over a long period of time. At worst, the effects of disturbance were shown to be minimal. There is no evidence to show that otters actively avoid areas of human activity either when foraging or resting.

6.392 In terms of road traffic noise, it is confirmed that residential receptors are correctly considered to be of medium sensitivity. The figures included in the FoE evidence are incorrect. There would be a significant noise increase at 2,015 properties without mitigation and 1,265 with mitigation, thereby proving effectiveness of the noise barriers. Overall the scheme would be hugely beneficial in reducing noise at residential properties.

6.393 The scheme would result in an improvement in air quality both near the existing M4 and in central Newport irrespective of advances in technology. The scheme would therefore be fully compliant with UK and WG policy for air quality as set out in: *Improving air quality in the UK: tackling nitrogen dioxide in our towns and cities* (ID/045).

- 6.394 The analysis of flooding has taken full account of predicted sea level rises over the next 100 years.
- 6.395 Friends of the Earth's contention that baseline water quality in the River Ebbw already has a road-related water pollution problem and fails against water quality criteria is incorrect. An assessment of possible effects on water quality associated with discharges passes the tests for dissolved and sediment bound pollutants even without consideration of the large beneficial effect of dilution by tidal inundation. The pollution loads would be insignificant. Therefore, there would be no need for any ongoing monitoring, but a draft monitoring protocol for a minimum period of five years of monthly chemical and biological water quality monitoring at specific points is currently being reviewed by NRW. WG would have regard to that in any future practice.

WG response to the supplementary evidence

- 6.396 Removal of the tolls from the Severn Crossings increases the two-way demand for travel in comparison with the earlier assessed half toll scenario, thereby increasing the two-way traffic flow on all M4 motorway sections in both the opening and design years in both the do minimum and do something scenarios. The greatest increases occur at the eastern end of the M4, diminishing towards the western end such that west of J27 there will be very little change. On sections of the M4 in the do-minimum situation to the west of J26 and through J30 the westbound flows actually decrease because of a redistribution of trips arising from a switching from Newport or the valleys towards the east across the Severn. In other words, following the total removal of tolls some sections of the network would experience an increase in flows and some a decrease.
- 6.397 In his supplementary evidence, Mr Kells refers to increasing the risk of congestion on the A48(M). That is not correct. In the do minimum situation the daily flows eastbound and westbound respectively would be 27,098vpd and 23,865vpd assuming a half-toll imposition at the Severn Crossings. With no tolls those flows would increase to 27,264 eastbound but decrease to 23,672 westbound.
- 6.398 With the scheme in place the daily flows on the A48(M) would be eastbound 28,906vpd and westbound 25,087vpd in the half-toll scenario but 29,336vpd eastbound and 24,987vpd westbound with no toll. The effect of toll removal therefore makes little difference to the A48M relative to the figures predicted for the half toll situation.
- 6.399 The removal of the tolls will impact the do-minimum situation significantly, bringing about increased congestion, slower speed of travel and increased journey times. This increased congestion would be substantially reduced following the opening of the scheme which has sufficient capacity to cope with the increased flows. The proposed scheme would therefore improve network conditions in the future rather than, as suggested by Mr Kells, exacerbating problems. The removal of the tolls

strengthens the case for the proposed scheme, including its economic case.

- 6.400 After the removal of the tolls the scheme would remove a greater amount of congestion and thereby significantly improve the resilience and reliability of the network. The toll-free increases in traffic would increase the number of incidents and adversely affect a greater number of people. The benefits in negating that possibility have not been captured in the traffic model and have been excluded from the BCR but it is entirely logical to assume that those further benefits would be enhanced as a result of tolls removal and the economic case for the scheme would be further enhanced. The scheme would also further improve the functioning of the labour market by improving access to employment opportunities and would contribute to higher levels of productivity by improving interaction between businesses and widening the effective pool of labour and skills available to firms which would not be the case with a congested M4. These agglomeration effects would be higher under the no toll scenario as compared with the half toll scenario which form the basis of the case for the scheme earlier in the Inquiry.
- 6.401 With toll-free crossings in operation, the scheme, in removing congestion, would stimulate land-use changes and attract new investment to allocated employment sites in the south of Newport and Monmouthshire. It is noteworthy that Mr Kells view on the impact of removing the tolls is completely at odds with that of the widespread business community in South Wales which has lobbied for reductions in the toll for many years and have attended the Inquiry expressing support for the scheme. However, the economic case for the scheme does not rely on inward investment and such effects are not quantified either in the economic appraisal or the quantified assessment of wider economic benefits. Studies have found that transport improvements are unlikely to cause firms to move but, for firms looking for new premises, accessibility is one of the key factors influencing their choice of new location. The Spatial Economic Research Centre report of 2012 found that there was a strong effect arising from transport improvements on area employment, with a 10% improvement in accessibility leading to a 3% increase in the number of businesses and employment. The increases in employment were found to have arisen from firm entry into a region rather than an increase in the size of existing firms. In this regard the work of Cleary EJ and Thomas RE concluded that the Second Severn Crossing had improved prospects for industry in South Wales without weakening those of industry in the South West of England. A further study undertaken by the Welsh Office and another by Cambridge economic consultants found other supporting evidence and it is clear that there are parallels between the construction of the Second Severn Crossing, the removal of the tolls and delivering the scheme.
- 6.402 Because the opening of the scheme would be delayed to accommodate the works in Newport Docks traffic flows in the opening year would be 3.4% higher than would otherwise be the case. This is simply growth attributed to the additional two years and none of that is additional traffic

over and above natural growth. Mr Kells has also misunderstood the traffic model, which in the case of the M4 is the National Trip End Model 7.2 (ID/200).

- 6.403 In terms of the impact on climate change, compared to the do minimum situation the extra traffic on the M4 corridor would follow a shorter and less congested route with the scheme in place so that the impact on climate change would be less than it would have been without the scheme in place. The new road would also enable the public transport bus system to be more attractive because it would run on a less congested wider network as a result of the scheme. That also reduces gases which contribute towards climate change.

Cycling UK and the Blue Route (Alternatives 1 and 2) (O247)

Inspector's note

At the Inquiry Cycling UK were represented by four witnesses, Mr Roger Geffen, Dr Hugh Mackay, Dr Steve Melia and Professor Stuart Cole. Each had individual specialisms, but at the end of their individual Inquiry appearances there were sharp differences of opinion on whether or not the hitherto advocated Blue Route (Alternative 1/2) was a mainstay, or any part, of the Cycling UK case. Professor Cole, after some initial ambivalence, decided to continue to advocate the Blue Route as a relief road for the M4. Mr Geffen said that it should only be considered if a package of measures encouraging public transport and active travel proved to be insufficient, but eventually gave the alternative lukewarm support. Dr Mackay supported the Blue Route but had not realised the disadvantages it would bring to pedestrians and cyclists and Dr Melia was opposed to the Blue Route or any road scheme being built. Those divergences of view placed the Inquiry into uncertainty of what Cycling UK were actually advocating.

After leaving the Inquiry, an email dated 9/5/17 from Dr Mackay sought to clarify the position. He confirmed that Cycling UK supported the Blue Route, or any variants of it but only to the extent that additional road capacity is deemed to be necessary to address the capacity pressures on the existing M4. Dr Mackay stressed that the primary goal of Cycling UK is to advocate the adoption of a package of what he thought were sustainable transport measures, combining investment in active transport (including public hire bikes) with the Metro, investment in improved bus infrastructure and services (including park-and-ride schemes), speed management on the M4 itself and traffic restraint through road user and/or parking charges. He concluded that the Blue Route should be considered alongside that package.

This was responded to by WG on 18 May 2017, in which it pointed out that Dr Mackay's email was contrary to his clearly stated oral evidence at the Inquiry that, apart from the Blue Route, he had given no detail of other measures and would not be in a position to provide any to the Inquiry. It pointed out that this change of stance in the Public Inquiry position denied WG the opportunity to cross examine that evidence.

WG also stated that the scheme would be complementary to the Metro proposals and that active travel options had been considered earlier and some taken into account in the development of the project. The earlier consideration of non-road-based alternatives led to them being rejected in favour of the road scheme and that was judged to be a rational and lawful application of procedures at the Judicial Review in 2015 (ID/066).

There was also uncertainty at the Inquiry about important details of the Blue Route. It transpired that the details of the alternative were not as previously confirmed by Professor Cole and modifications to the proposal were orally submitted by him to the Inquiry at the last minute, together with new evidence advocating a phased approach to the building of the alternative, an influential matter which hitherto had not been made clear.

I have had regard to these late changes in my assessment of the alternatives, upon which I report in Section 7 of this report and in my conclusions at Section 8.

The evidence of Mr Geffen and Dr Mackay

6.404 Cycling UK, the National Cycling Charity, was founded in 1878 and was previously known as the Cyclist Touring Club (CTC). It has about 68,000 members, of which 2,400 are in Wales. Its vision is of a healthier, happier and cleaner world through more people cycling. The organisation objects to the scheme because it would:

- occupy a tranquil area through which a major cycling route runs;
- contravene government policies aimed at reducing car use, tackling congestion, pollution and climate change, improving the health and equality of people and reducing physical inactivity and obesity, and
- generate 5-7% additional traffic and foster future development and land use changes that would further perpetuate society's dependence on the motor vehicle and should have been assessed against a sustainable and active travel alternative*.

Inspector's Note

**This package was not detailed or defined at the Inquiry.*

6.405 Cycling UK accept that the scheme would reduce congestion but it would also:

- increase motor vehicle usage and dependency and deter cycling;
- overall increase pollution, congestion, danger and greenhouse gases;
- threaten the laudable aims of the Active Travel (Wales) Act 2013, by drawing public funds from the creation of high-quality walking and cycling routes, as called for by the Act;
- be too grand because only 15% of traffic needs to be removed from the M4 to solve congestion;
- fail to provide more equality or reduce social exclusion, and
- fail to give good value for money or help cycling and walking.

6.406 The cultural significance of the car is changing and the traffic forecasts and modelling used to justify the scheme take no account of this, of rail electrification, the declining levels of car use since 2006, the phenomenal localised growth in cycling and the further increases in walking and cycling envisaged by the Active Travel (Wales) Act 2013.

6.407 As an alternative, a series of public transport measures, including a

railway station at Magor, the closure of particular M4 junctions and the enhancement of the cycling network should be provided. These and other possible demand reduction and sustainable travel measures have not been thoroughly developed or subjected to a comparative Environmental Impact Assessment. Cycling UK contends that such an assessment, should have been carried out to conform with the Active Travel (Wales) Act (2013) and EU Environmental law.

The evidence of Dr Steve Melia

6.408 Dr Melia is a senior lecturer in Transport and Planning at the University of the West of England. In his opinion, the scheme would be incompatible with WG sustainability policies, offer poor value for money relative to other transport projects and would confront the sustainability principles contained in the WCFG 2015 Act.

6.409 He accepted that he had not scrutinised the traffic model process but the forecasts of future traffic appear to be too high because they have overestimated future car ownership, GDP and population growth and are inconsistent with recent trends. Induced traffic has been underestimated because of potential land-use changes. The SACTRA report highlighted a potential 5-10% volume of induced traffic. New motorways disperse new development to motorway junctions, from urban centres and encourages residential sprawl.

6.410 The relatively low BCR has been overstated because of the erroneous traffic forecasts and the economic appraisal has not allowed for the "deadweight" loss of finance through taxation. In Dr Melia's view wider economic benefits can accrue from large road schemes but their quantum is uncertain and should be disregarded. It has also been established that new main roads can cause economic activity to shift from one place to another, although there are no studies that have ever confirmed a causal link between road improvements and national GDP. The scheme could facilitate additional development to occur in its vicinity but not increase national GDP.

WG response

6.411 The Sustainable Development Report sets out how the scheme aligns with the WCFG 2015 Act. Early strategic work considered all social, environmental and engineering factors, involving stakeholders to identify aims and objectives and a long-term approach has been taken to deal with the transport and wider needs of future generations. The scheme, the reclassification of the existing M4 and their combination with the Metro, would be a hugely important part of WG's vision for an efficient integrated transport system in Wales.

6.412 Modelling has demonstrated that the total annual user carbon emissions on the South Wales highway network would reduce as a result of the scheme, albeit by less than 1% in 2022. The reduction of stop-start traffic conditions combined with a reduction in journey lengths at

Newport and over the wider network, account for this.

- 6.413 Air quality would improve significantly within four of Newport air quality management areas significantly and on a wider regional scale air quality would also improve, despite some local increases in air pollutants along the route of the scheme.
- 6.414 The effects the scheme would have on biodiversity have been tackled following meetings and dialogue with NRW and CADW, the relevant local authorities and other stakeholders. Particular consideration has been given to the Gwent Levels SSSIs, the River Usk SAC and the Severn Estuary SAC, SPA and Ramsar site. This recognises the duties under Section 28G of the Wildlife and Countryside Act, the Natural Environment and Rural Communities Act and the Habitat Regulations.
- 6.415 The traffic forecasts for the scheme were derived from the national trip end model, the datasets of which are long-term forecasts and represent the Department of Transport's estimate of the long-term response to demographic and economic trends; they are based on predicted demographic changes and they do not take account of changes in generalised cost of travel in the future or in the disutility that individuals attached to different elements of generalised cost. The transport model has been fully developed in accordance with WebTAG guidance, it is fully consistent with other national projects and is fully up-to-date. The National trip end model central growth scenario used for the scheme, is based on the latest trip rate data collected in the trip rate review undertaken by the Department of Transport and assumes a declining trend in trip rates between its base of 2011 and 2016 and then constant rates thereafter. The traffic predictions take account of the very latest projections in population, the linkage between GDP and car ownership and other factors.
- 6.416 It is noted that Dr Melia recognises that the traffic forecasts used for the scheme include induced traffic through the use of a variable demand model.
- 6.417 The trendline use by Dr Melia to demonstrate average UK GDP growth is likely to be misleading and is not an approach used by economists when forecasting long-term GDP growth. WG has used the growth factors established in WebTAG in the long term. The criticisms made that the assumptions used in WebTAG are of doubtful reliability, with fuel prices and GDP being quoted as examples are dictated nationally by transport appraisal guidance, the voracity of which is not a matter for the Inquiry.
- 6.418 It is noted that Dr Melia considers the scheme would offer poor value for money. The Department of Transport categorises a scheme with a BCR of less than one as being poor value for money, low value for money if the BCR lay between 1.0 and 1.5, median value for money if the BCR lay between 1.5 and 2.0 and high value for money for projects with a BCR of between 2.0 and 4.0. The value for money category is determined by the Department of Transport based on the adjusted BCR for a scheme and

therefore has taken account of wider impacts. With a BCR shown to be in the order of 1.62, even if wider economic benefits were ignored the scheme would demonstrate medium value for money. The additional benefits would classify the scheme as offering good value for money.

- 6.419 Dr Melia claims that there is evidence that cycling schemes funded by the Department of Transport have a higher value for money. If one were to consider the benefits of investing £1bn in cycling infrastructure the issue of diminishing returns would need to be taken account of. Small scale cycling interventions could give good value for money and the schemes considered in the Department of Transport paper comprise 12 separate cycling schemes across England which comprised £150 million of investment in total. It would be reasonable to expect that the number of schemes could be identified which would offer a relatively high rate of return but once those initial investments had been delivered it is inevitable that the rates of return would begin to fall. It follows that whilst there may be cycling projects with high rates of return this does not prove that the best way of spending £1bn on transport is to invest in cycling and not roads. The issue therefore has no relevance to consideration of the scheme in any event and it should be noted that the purpose of the economic appraisal is to consider the costs and benefits of options that address the scheme objectives and not a comparison of government-wide policies which meet other objectives but do not address the issues identified with the M4 around Newport.
- 6.420 It is noted that Dr Melia referred to the Eddington Report, but that report states in paragraph 1 on page 5: *this study demonstrates that the performance of the U.K.'s transport networks will be a crucial enabler of sustained productivity and competitiveness: a 5% reduction in travel time for all business travel on roads could generate around £2.5 billion of cost savings – some 0.2% of GDP. Good transport systems support the productivity of urban areas, supporting deep and productive labour markets, and allowing business to reap the benefits of agglomeration. Transport corridors are the arteries of domestic and international trade, boosting the competitiveness of the UK economy.*
- 6.421 Above all, the Eddington Report at its paragraphs 9 and 10 on page 6, recommends a targeted approach to transport investment: *to meet its economic goals for transport, government should prioritise action on those parts of the system where networks are critical in supporting economic growth, and there are clear signals that these networks are not performing. On this basis the strategic economic priorities for long-term transport policy should be the key inter-urban corridors and the key gateways that are showing signs of increasing congestion and unreliability.* Investing in the scheme is totally in line with this approach because this key inter-urban motorway is congested and unreliable.
- 6.422 Dr Melia's arguments about deadweight loss is not in accordance with WebTAG guidance, nor the overarching guidance on public policy appraisal in the UK – the Green Book. In any event, in terms of deadweight loss of taxation, there is an important distinction between a

transport scheme with a BCR significantly below one and a scheme significantly above one, as is the case here. In any event, Dr Melia's argument contravenes the Bushell principle and does not fall to be considered at the Inquiry.

6.423 In 2014, the Department of Transport commissioned a major academic review of the relationship between transport investment and economic performance – referred to as the Venables report. The review states on page 14 that: at the macro level there are numerous studies establishing the relationship between measures of transport infrastructure and GDP. Estimates suggest that a 10% higher infrastructure stock is associated with around 1% higher income. One way to interpret this is that if all inputs (including transport infrastructure) were to increase by 10% then GDP might be expected to also increased by 10%: but if transport infrastructure were to remain constant, then GDP would increase by only 9%. Evidence is also available of the relationship between roadbuilding specifically and GDP.

The evidence of Professor Stuart Cole

The alternative strategy

6.424 Broadly Professor Cole's alternative strategy is based on an undefined, futuristic mass-transit scheme and a more immediate relief road for the motorway, known as the Blue Route. In his opinion, the Blue Route would:

- be significantly cheaper than the scheme;
- be built earlier than the scheme;
- meet most of the objectives set by Ministers;
- deal with the observed problem of peak period westbound congestion conditions, when major events take place and the lack of general resilience of the M4, and
- reduce the risk of environmentally damaging overprovision in the event of the abatement in traffic growth continuing.

The question over the justification of the scheme

6.425 Traffic forecasts used to justify the scheme should be based on the work of Professors Goodwin and Jones who have argued that car use has already plateaued. WG's forecasts indicate a need for 20% more traffic capacity in the M4 corridor by 2035 but their traffic model shows 40% would divert onto the proposed motorway, more than necessary to resolve the current congestion on the existing motorway.

The Blue Route (Alternatives 1 and 2)

6.426 The Blue Route would construct urban flyovers at many of the A48 SDR

roundabouts and combine that improvement with an upgrading of the A4810 Steelworks Access Road. These improved roads would connect to the existing junctions, J24 and J28 respectively of the M4. Of the various options developed by WG for Professor Coles alternative, Scenario 7 thereof defines the alternative for the Inquiry to consider*. It would be a dual 2-lane expressway which could be constructed progressively as funding allowed. Professor Cole asserted that Government owned land alongside the A4810 (but not the A48 SDR) would be sufficient for widening to dual three lanes along that particular length, at a future date, although it is accepted that would be a difficult engineering exercise. Both arms (A4810 and A48 SDR) would be trunk roads and either could be constructed sequentially to the other but no program for construction of the alternative was advanced to the Inquiry. No substantial road enhancement at the Coldra or Tredegar Park would be undertaken. Professor Cole considered that the A4810 and A48 SDR are already potentially capable of providing relief capacity for the M4 between J23/24 and J28 but that existing capability is not taken advantage of by road users, largely due to the number of at-grade roundabouts.

6.427 In Professor Cole's view:

- the Brynglas tunnels do not, of themselves, justify the provision of additional capacity;
- The Metro would provide some relief and that, combined with the Blue Route, would provide the necessary capacity whilst preserving the Gwent Levels SSSI's and providing access for industry, commerce and the Glan Llyn housing development;
- elsewhere in the world the creation of non-motorcar commuter tram, bus, rail, cycling and walking facilities has attracted 40 – 60% of journeys, and
- a free-flowing largely grade-separated Blue Route would provide a level of choice for people and would have sufficient capacity based on the research work of Professors Goodwin and Jones.

6.428 Professor Cole thought that the Blue Route, originally costed by him at £380m at 2013 prices, would be considerably cheaper than the scheme, which comparatively, had been estimated to cost £936m. The cost saving in adopting the Blue Route could be used for opportunities elsewhere. He recognised that estimates have changed, and WG now claims that the Blue Route would cost £838m at 2015 prices. Correspondingly, the motorway scheme would cost £1,131, from which, he claimed, it can be deduced that the estimates for the Blue Route are disproportionately high relative to the earlier assessment*.

**Inspectors Note*

Subsequent to the appearance of Professor Cole at the Inquiry the costs of the published scheme increased to £ 1,320m because of the need to undertake works in Newport Docks. As the Blue Routes would not affect the docks no additional cost loading on the

Blue Route is needed. Because of the additional traffic loading following the removal of Severn Crossing tolls the BCR of both the published scheme and Blue Route would increase slightly, irrespective of the cost increase, but I have reported below the original figures that applied at the time of hearing the case at the Inquiry.

- 6.429 Professor Cole noted that currently the BCR for the published scheme is 1.62 (below the HMT stipulation of 2.0) but only 0.94 for the Blue Route. He pointed out that public schemes in the past have proceeded even when the BCR is less than 1. If wider economic effects are taken account of the BCR for the Blue Route would increase to 1.37 and to 2.23 for the motorway. In Professor Cole's view these wider benefits are uncertainties, although he accepted that the construction of a new motorway may be a pre-requisite for benefits to accrue, particularly for manufacturing industries. However, he considers that improving transport communications in South Wales may make the area susceptible to industrial migration closer to markets, or for economy of scale or logistical reasons.
- 6.430 He did not accept that the Blue Route would take eight years to construct, far longer than the published scheme, or that that period would be on top of a period necessary for the completion of statutory procedures. He thought that the alternative would remove the congestion from the M4 earlier than the published scheme, since a smaller project could be completed sooner (PIQ101b) *.
- 6.431 It is accepted that the Blue Route, would cause traffic disruption during construction but that could be mitigated by well-planned traffic management, and that it would divert traffic from the M4 into the urban fabric, thereby increasing some noise levels in residential areas of Newport.
- 6.432 It is also accepted that the Blue Route would potentially have a speed limit, of perhaps 50 mph and would involve some land-take, although there are sites of derelict land, open land and retail land which would be available for use. Any necessary widening of the Blue Route in due course would be difficult but, based on earlier traffic flows it should satisfy capacity requirements up to the year 2025 by accommodating about 15% of the current motorway traffic. Set against these disadvantages the business community sees an early need for a relief road around Newport. The Blue Route, which has the support of the Federation of Small Businesses, would deliver that.

**Inspector's note*

At the Inquiry, Professor Cole changed the details of the Blue Route scenario 7 by removing a grade separated proposal near the M4 at Beatty Road, after the unacceptable highway standards of such a junction had been drawn to his attention by WG. He withdrew his earlier statement that the Blue Route could be constructed by 2018 and accepted that some of his grade-separated junction proposals would be very difficult to build in the urban environment.

At the Inquiry and under examination, Professor Cole accepted that if the national traffic forecasts are correct his Blue Route alternative would become unfit for purpose and congested by its design year. He conceded that he had not checked whether the recorded

traffic volumes of recent years supported his belief that traffic growth had plateaued on the M4. He had not read Mr Whitaker's evidence dealing with actual traffic counts and future predictions. He was prepared to accept the traffic figures taken from the actual data derived from the M4 MIDAS and that, if an 11% growth in traffic on the M4 over the last five years had actually been realised, his earlier predictions of little growth would be incorrect. However, he maintained that a five-year period is too short to confirm trends, although he was unable to say how long such a period of data should be. He stressed that it is the peak hour traffic flows that are of concern not all-day flows. In respect of this, I, following a request by Counsel representing Cycling UK directed that WG should produce an Inquiry note analysing whether the peak hour traffic flows had increased over the last five years – WG response to that request, showing peak - hour growth is occurring, is set out at PIQ110.

At the Inquiry and under re-examination, Professor Cole accepted that as no statutory procedures for the Blue Route have started there would be a delay relative to the construction programme for the published scheme but he felt incapable of a detailed challenge to the evidence WG on this point. He accepted under examination that if the Blue Route could not be built until 2031 it would be congested on the day of opening, even if annual growth of only 0.5% took place, and that would be of significance. With the Blue Route in place in 2037, traffic flows using the Brynglas Tunnels would only reduce by 3,000 vpd, whilst the A48 Usk river crossing on the Blue Route would increase from 45,000 vpd to 69,000 vpd, proving that the main beneficiaries of the improvement would be local drivers and the Blue Route could not represent a sustainable solution.

WG Response

Traffic matters

- 6.433 Cycling UK have understated the extent of the M4 congestion which is frequent between J24 and J26 westbound and between J26 and J28 eastbound. On Fridays, westbound queues can extend back almost as far as the Second Severn Crossing, whilst current traffic speeds on all sections between Castleton and Magor, and in both directions, are often less than 50 mph throughout much of the day.
- 6.434 These conditions would be exacerbated by the design year of 2037 (2039), when daily traffic flows would exceed 100,000 vpd, from J23 to J25a and 136,000 vpd from J26 to J29, thereby increasing the ratio of flow to capacity (AADT/CRF) along the Newport section of the M4 above 1.0. Local roads in Newport would suffer from the spill-over of frequently delayed traffic and daily diversions through central Newport would occur. That degree of unsustainability could only be obviated by a new motorway which would solve the current problem, provide strategic free flowing capacity for the future and local access to the existing motorway.
- 6.435 Traffic forecasting is uncertain but the long-term forecasts represent the Department of Transport's estimate of the long-term response to demographic and economic trends. The standard methodology laid down in policy documents has been adopted for the scheme. The latest central growth traffic scenario used is based on the latest trip rate data and accepts a declining trend in trip rates between its base of 2011 and 2016, with constant trip rates thereafter.
- 6.436 It is a fact that traffic growth has consistently occurred on all sections of the Newport M4 on a yearly basis since 2011 proving categorically that

motorway traffic growth has not stopped or flattened out which would be the case should the "peak car" philosophy advocated by others and used by Professor Cole be correct. Road traffic in Britain hit a record high in 2016, with a 1.2% increase relative to 2015. Traffic levels on motorways in particular increased to new record levels and all the statistics clearly prove flows on the M4 are also increasing steadily. This traffic growth is down to economic factors rather than social change. The "peak car" hypothesis relates to per-capita car use, but growth in population will result in an increase in the absolute number of cars and car miles driven, even if the use of cars per person were to stabilise. It is also a fact that the decline in car use has been observed only in very dense urban areas such as central London and in particular amongst young men. Professor Cole's suggestion that traffic growth on the M4 motorway has peaked is not supported by the facts.

- 6.437 The Professor's assertion that congestion on the M4 is restricted to peak flows on weekdays and around times of major leisure events, which does not of itself justify the provision of additional capacity, is also factually wrong. It has been established that on an average day the speeds of traffic on the Newport section of the M4 drop below 50 mph in time periods clearly outside the peak hours, covering much of the working day.
- 6.438 It is also incorrect to say that the traffic analysis used to justify the scheme excludes the effects that the Metro would have. Those effects have been included in the traffic forecasts, as has the electrification of the Great Western mainline railway. The combined effects of these public transport improvements together with strategic park-and-ride sites and the Newport Bus Rapid-Transit Scheme would reduce traffic flows on the M4 by a maximum of 6% in the PM Peak hour, which does not resolve the problems of the motorway. These public transport measures, some of which may be long-term, should be seen as complementary to the scheme but no more than that. Clearly, if all these public transport enhancements are delivered, a road-based solution to the problems of the M4 would still be essential.
- 6.439 Professor Cole's view that the A4810 and A48 SDR are already capable of providing relief for the M4 is generally agreed during normal operating conditions. However, the impact of an incident, or the current prolonged periods of congestion on the motorway, exposes the severe limitation of such relief. This is all too evident from the gridlock which always builds up on the A48 SDR whenever the M4 is obstructed or congested, an obvious observation made by many local people, industry representatives, the local MP and Gwent Police. This current inability of the SDR and A4810 to provide the necessary resilience causes significant diversion to the A465 Heads of the Valleys road and the A472 Newbridge to Pontypool cross-valley road. The coast road (Lighthouse Road) between Cardiff and Newport also experiences diversions. These are well-known local facts.
- 6.440 Dr Melia accepts that the Traffic Forecasting Report includes the induced

traffic both from the scheme and the reduction in tolls. The induced traffic which will arise from the reduction in tolls charges is significantly higher than that which would come from the construction of the scheme. The trips generated by specific development sites which have been included in the LDP's of Newport, Cardiff and Monmouthshire were all taken into account in the model predicting future traffic. However, the local authorities were specifically asked whether any dependent development, contingent upon the construction of the scheme should also be considered. None was identified and their inclusion in the traffic model would have been both speculative and incorrect. The planning powers are in place to restrict development if necessary.

6.441 Mr Geffen and Dr Mackay have stated that SACTRA estimated that cutting travel time through the construction of a new road could increase traffic by 5 to 10%. The induced effects of the scheme, forecast by the modern variable demand traffic model, are entirely consistent with those estimates.

6.442 It is not accepted that congestion on the M4 at Newport is primarily a local transport problem, nor that only 15% of traffic would need to be transferred to other modes of travel to eliminate congestion on the motorway to around 3½ hours each day. No detailed evidence to back up the assertion has been submitted to the Inquiry but the view of WG is contrary to that point and also to the belief that significantly increasing bicycle travel would remove the need for the scheme. To put that in context, a doubling of the number of cycle trips in the locality would only reduce traffic on the M4 at Brynglas Tunnels in the AM Peak period by about 0.3%. That, combined with the inconsequential relief which the total package of public transport enhancement measures would bring about, destroys the argument that congestion on the M4 could be solved by such measures.

The Ineffective Blue Route

6.443 The Blue Route has been assessed in detail to determine whether it would cater for future demands. With it in place and built completely, the two-way traffic flows on the existing M4 between J27 and J28 would reduce by 7%, 4% and 2% respectively in the years 2022, 2037 and 2051. In the morning peak periods, the two-way flows would reduce by 7%, 3% and 0 percent respectively. At the Brynglas Tunnels, two-way flows would reduce by 8%, 4% and 3% respectively and that contrasts with the reductions which would occur with the scheme of between 30 and 50%. Similarly, there would be small percentage reductions of less than 10% for other sections of the M4.

6.444 The Blue Route would attract local traffic rather than M4 traffic and would have very little effect on improving the predictability of journey times. The slow-moving stop-start traffic conditions would prevail and the Blue Route would not provide sufficient added capacity for future traffic flows. However, with the demands which would be placed on the Blue Route, Professor Cole's predicted 50 mph speeds would be largely unachievable

in the early years and certainly not in the later years thereby negating the current essential function of the A48 SDR. It would therefore provide little resilience to the road network and would be unsustainable. The Blue Route would actually increase traffic on the heaviest loaded section of the M4 between J28 and J29.

- 6.445 Adopting the Blue Route would cause operational problems along some parts of the A48 and A4810 which would be exacerbated at times of incidents. Delays to local journeys would themselves exacerbate public transport problems. This was proven when the fire incident took place in the Brynglas Tunnels in 2011 and resulted in severe congestion across the whole of the main south-east Wales highway network. The statement made by the Gwent Police is pertinent in this regard..." *The A48 SDR is nearing capacity most of the daytime with vehicles negotiating the Newport city area and using this as a bypass. This is a frequent complaint from locals. Any closure of the M4 particularly during the day quickly results in gridlock of Newport City and A48 SDR. This can affect the emergency routes in particular to the Royal Gwent Hospital or movements of any other emergency vehicles in the Newport city area*" (S207). This experience of complete gridlock across Newport was experienced during the period of the Inquiry and the widespread consequences for industry, motorists and public transport were evident.

The Blue Route would cause significant difficulties for the huge Glan Llyn housing development, it would wreck the agreed highway access strategy and is strongly opposed by the developer. In contrast, the scheme would enhance access to that development.

The relative effect on cycling and walking

- 6.446 The Cycling UK witnesses assert that the scheme would be incompatible with WG sustainability policies and duties and that the scheme would contravene policies to tackle congestion, pollution and climate change, to improve public health and reduce physical inactivity and obesity, and to improve the quality of opportunity. They claim that the scheme would affect aspirations to halt the loss of biodiversity as well as not contributing to the government's integrated transport policy. All the statements are wrong and challenged. The Sustainable Development Report described how the scheme aligns with the goals of the 2015 Act, and the sustainable development approach has been adopted throughout the development of a solution to the problems associated with the M4.
- 6.447 The proposed motorway and reclassification of the existing M4, in combination with the Metro, is a hugely important part of WG's vision for an efficient, integrated transport system for Wales. In terms of climate change, the evidence points to a small reduction in carbon occurring and air quality and noise pollution generally would significantly benefit from its construction. In terms of biodiversity, the development of appropriate mitigation measures has been integral to the development of the project as a whole and subject to regular meetings and dialogue with representatives of the relevant authorities and other stakeholders.

Particular consideration has been given to the potential impact on the Gwent Levels SSSIs and the River Usk SAC as well as the Severn Estuary SAC, SPA and Ramsar site. The widespread and evident actions in developing the scheme recognise the duties set out in the relevant Acts and Regulations.

- 6.448 The scheme would be beneficial to walking and cycling. In sharp contrast, the roads along the Blue Route which currently accommodate pedestrians including schoolchildren and cyclists well, would have a 42% increase in traffic which would adversely impact upon pedestrians and cyclists. No alternatives to those well used existing cycling and walking facilities have been proposed by Professor Cole but upgrading of the A4810 and A48 SDR would remove segregated footbridges, increase severance and generally have a severe impact on cycling and walking. Contrary to the erroneous claim of Cycling UK, the package advocated by them would have a negative impact upon physical fitness as a reduction in permeability and attractiveness of cycling and walking takes place.

The availability of funds

- 6.449 Mr Geffen and Dr Mackay expressed their concern that the scheme would draw heavily on public funds that could alternatively be used to support the creation of high-quality walking and cycling or other transport schemes across Wales. They claim that substantial cost savings would be made as a result of opting for the Blue Route rather than the scheme. They are misguided in that. Whilst it is not for Public Local Inquiries to recommend the allocation of Government funding to other schemes anyway, it is of note that the concept upon which Cycling UK has advanced its public funding concerns is erroneous. The Blue Route had hitherto been estimated by Professor Cole at about £380m, but a more realistic figure is £838m at Q4 2015 prices. Moreover, if the Blue Route construction was stretched out over many years - a claimed fiscal advantage advocated by Professor Cole - then inevitably those costs would increase, as contract overheads would need to be repeated relative to a single succinct construction contract.

Engineering matters, cost and economics

- 6.450 Professor Cole's assertion that the Blue Route would provide better access to the City of Newport as a whole is wrong. The published scheme would provide an appropriate level of access to and from Newport, commensurate with its nature as a strategic highway. The reclassification of the existing M4 to the north of Newport would maintain and improve connectivity with the city, with the addition of full movements access at J25 for St Julians and Caerleon. That would be impossible with the Blue Route.
- 6.451 Professor Cole has described the Blue Route as "an expressway". This is not a recognisable term in UK highway engineering but his description could be inferred to be an urban motorway with full grade separation at all junctions and a high-speed flowing alignment commensurate with

such a motorway standard. The Blue Route could certainly not provide such a standard, but in developing the details of the alternative WG has made a balanced judgement of appropriate design standards between the competing factors of safety, cost, impact on the existing communities and businesses and connectivity with the existing local road network. That was the basis of producing Professor Cole's *Scenario 7* (which he publicly accepted) but it should be noted that to provide a thorough trunk road to the mandatory DMRB standards, would increase costs and environmental impacts significantly compared to the hybrid and limited engineering scenario requested by Professor Cole which is completely contrary to the expression "expressway".

- 6.452 Professor Cole has suggested that the Blue Route could be constructed earlier than the scheme. It appears that a large number of objectors seized on that erroneous assertion as grounds for objecting. It is fundamentally wrong and misleading. Completion of the necessary surveys, analysis and the statutory procedures for the alternative would mean that no construction could start before 2023, with an eight-year construction period necessary to reflect the complications of the particular urban project which would involve nine new grade-separated junctions and the enhancement of a further nine at-grade junctions on roads that already carry large volumes of traffic. It would be impracticable to disrupt all these junctions at the same time and hence the construction would need to be spread over a long period. Furthermore, due to the severely constrained nature of many of the urban junctions, traffic would be limited to a single lane in each direction during the construction period, the grade-separation would need to be undertaken sequentially and that would cause significant disruption to the whole of the network in that part of Newport. Such disruption has not been taken into account in assessing the BCR of the alternatives but would weigh against the calculated BCR of the Blue Route.
- 6.453 The Blue Route alternative, in driving an expressway through the urban fabric of Newport, would threaten the demolition of about 20 residential properties and 30 commercial properties. About 3,600 residential and commercial properties would lie within 200 m of the proposed route and could be blighted with increased noise and air pollution. For example, the necessary grade-separation of the A48/ Commercial Road (Newport) would require a flyover to be constructed within a few metres of the recent modern flat complex on Commercial Road. Such an occurrence would have enormous environmental consequences for that immediate area and other densely packed residential areas alongside the route, not least because the grade-separated carriageways would be elevated well above bedroom level.
- 6.454 Professor Cole has produced no evidence to support his cost estimate of £380m for his alternative. The cost of the Blue Route has been calculated at about £836m and does not include any costs for further improvement of J28 or J24 at the Coldra or Tredegar Park. These junctions would not cope by the design year.

The Supplementary evidence of Dr Mackay

Inspector's note

Following the issue of substantial new evidence by WG in response to the decision to remove the Severn Crossing tolls in 2018 and the recognition of the need for substantial additional expenditure to off-set the severe detriment that would otherwise occur to the Newport Docks, Cycling UK sought leave to submit further evidence to the Inquiry. I granted that and the gist of this is immediately below.

6.455 Following the decision to remove the Severn Crossing tolls in 2018, Cycling UK, through Dr Mackay, question:

- whether the production of carbon has been accurately assessed having regard to a 1.7%pa growth in traffic, which it appears would not result in a growth of 1.7%pa in pollutants, the uptake of electric vehicles putting back the date of the carbon neutrality claim for the scheme, the additional works in Newport Docks generating carbon and that no regard has been had to the UK Government's announcement that it will end the sale of all new conventional petrol and diesel cars and vans by 2040;
- what is the basis for the projected 1.7% rise in traffic due to the abolition of tolls as opposed to halving them and are there any other examples of traffic increases and economic impacts from toll removal;
- the unexplained increase in scheme costs from £1.131 billion to £1.321 billion;
- the increase in the BCR with no tolls (1.5 to 1.7) relative to the increase in the wider impacts BCR (2.06 to 2.29);
- whether the estimated cost of the new scheme is sufficient having regard to the price base of 2015, the absence of an allowance for inflation or VAT, (which may be payable), the interest which would be payable on that portion of the capital which is borrowed and the repayment of the borrowed element of the capital;
- whether the £37.5 million taken from WG's economic development budget would deny other schemes being constructed;
- whether there is clarity in the public domain over the cost of the scheme which would fall outside the £1 billion which might be borrowed and whether funding it would deny other projects; if so what are they?
- why WG has ignored UK Government Port policy aimed at shifting freight from road to rail, and
- why there is no indication that the impact of the abolition of tolls for the viability of container-trains to the container terminal in Cardiff has been considered because the abolition of tolls will have an

impact on the viability of the two trains per day which use this terminal and the evidence has not referred to the shift from rail to road which may occur.

WG response to the supplementary evidence of Dr Mackay

6.456 Dr Mackay questioned the traffic increases that would occur on the M4 when the tolls are removed. To put this into context:

- in 2022, without the scheme in place 68,193 vpd would use the M4 should a half-toll have been charged;
- in 2022, with the scheme in place, the M4 would carry 71,726 vpd should half-tolls have been operating, representing a 5.1% increase which would arise because of the scheme being built;
- in 2022, with the more favourable no-toll situation but without the scheme in place 82,383 vpd would use the M4;
- in the 2022 more favourable no-toll situation with the scheme in place, 83,946 vpd would use the M4, representing an increase of 1.9% compared to the no-scheme in place situation, and
- in 2037, with the scheme in place and no tolls 98,714 vpd would use the M4

6.457 Dr McKay also questioned why there was no reference in the evidence to the highly authoritative studies that have been carried out recently on the impact of traffic levels arising from the reduction or abolition of tolls in the UK. There are no authoritative studies but some based very loosely on a comparison between the before and after counts in which increases in background traffic do not get separated out. In any event, the responsiveness to the reduction or abolition of tolls is very location-specific and sensitive to the quality and length of the alternative routes, the scale and quantum of the tolls and the propensity to pay. In respect of the Severn Crossings, the abolition of a £6.90 toll is approximately equivalent to 75 minutes in terms of the average value of time. The results from the M4 traffic model are broadly in line with the findings of increases in traffic from the removal of tolls on bridges in Scotland and England.

6.458 The increase in traffic arising from toll removal diminishes the further west one travels.

6.459 The increase in benefits arising from the no-toll situation but with the scheme in place would be balanced by the increase in costs arising from the necessary works within the docks. In terms of cost increases the Office for National Statistics has published a Construction Output Price Indices report which shows that between December 2013 and December 2017, as a whole, infrastructure projects output prices rose by only 4.6%, whereas the general price level in the economy rose by 5.6%. Therefore, there is no evidence to suggest that construction inflation

would increase at a faster rate than general inflation.

- 6.460 The costs used in the economic appraisal of the scheme exclude VAT, as is traditional for the assessment of highway projects. The economic appraisal or cost benefit analysis is an assessment of impacts on social welfare or utility. Expenditure on VAT represents an internal government transfer. Any expenditure subject to VAT would result in an increase in overall government tax receipts. Therefore, expenditure relating to VAT does not represent an economic cost and there is no loss of welfare or utility associated with it. It is therefore appropriate to exclude VAT from the economic appraisal. This rule applies to all road scheme assessment whether they are national or local government schemes and is fully in accordance with longstanding Government economic appraisal guidance.
- 6.461 The scheme would be funded through a combination of UK Government borrowing and WG capital budgets. The costs of borrowing have not been included in the economic appraisal which compares the benefits of the scheme against the cost of the resources required to deliver the project. Whether the scheme is funded through UK borrowing or capital budgets is essentially a budgetary issue within government. It has no influence on the BCR for the scheme. The correct approach to assessing the economic appraisal of a road scheme is to compare the benefits of the scheme with the costs of investment required to deliver it. There is no requirement to take account of any benefits lost by not investing in some other policy which may meet other objectives. Dr Mackay suggested that alternative schemes such as active travel would provide better value for money. In this regard it should be noted that the purpose of the economic appraisal is to consider the costs and benefits of options that address the scheme objectives. It is not the purpose of the economic appraisal to consider the value for money of policies which meet some other objective and do not address the issues identified with the M4 around Newport. Notwithstanding that point, Dr Mackay's point is unproven and ignores the issue of diminishing returns.
- 6.462 The inclusion of wider impacts in the economic appraisal of the scheme was a response to the findings of the SACTRA Committee that demonstrates that the value of initial transport impacts will not be the same as the value of final economic impacts and thus there are additional economic impacts over and above the value of direct transport impacts. Since the 1999 report there have been two major reviews into the topic of transport and the economy. The most recent of these: *The Transport, Investment and Economic Performance: Implications for Project Appraisal Report*, finds substantial evidence that transport improvements do lead to improved economic outcomes in the local area. It concludes that studies which have looked at the effects of specific projects generally find positive effects of large transport projects on measures of economic performance such as local area employment or GDP, although effects for smaller projects are harder to tease out.
- 6.463 The SACTRA Report noted that improving accessibility between two places may sometimes benefit one relative to the other but the report

does not itself provide evidence of circumstances in which transport improvements have resulted in a negative impact on economic performance for large, already interconnected economies. The evidence given of circumstances in which transport improvements have had a negative impact on local economies relate to small towns and rural areas.

- 6.464 The scheme overall is effectively carbon neutral in whole-life terms but it is not possible at this stage to meaningfully quantify the impact that the uptake of electric vehicles may have. No detailed bottom-up calculations have been carried out for the proposed Docks relocation plans because there are insufficient details to hand at present. A very crude initial assessment gives a total increase of 57,000 tonnes of CO₂ for all the ABP works. Some port improvements may have happened anyway but setting that aside the total increase in carbon represents about 11% increase in capital carbon for the scheme. That would set back the date of carbon neutrality by about four or five years.
- 6.465 In its supplementary evidence Cycling UK raised the questions of shift in freight from road to rail (in respect of Newport Docks) and the effect that the abolition of tolls would have on the viability of container trains to the container terminal in Cardiff. It should be noted that Newport Docks already has good rail connections which would be maintained and protected if the scheme is approved. The relevant WG policy objective is to increase the movement of cargo and passengers by sea to reduce vehicle movements on the road network. However, the 2008 Wales Transport Strategy emphasises the need for effective integration between the docks and the road network. The impact of the abolition of the Severn crossing tolls on the viability of container trains to the Cardiff container terminal is not a matter for the Inquiry but it should be noted that any shift from rail to road would lead to further congestion on the M4 which will strengthen the case for the scheme (ID/210 Revision B).

The Magor with Undy Community Group (O150)

The evidence of Councillor Frances Taylor and Dr Mario Bisi (O311)

- 6.466 The objection, presented on behalf of Magor residents, was wide ranging and included 50 individual points. Amongst them the residents' representatives considered that the short-sighted scheme would have a significant, disproportionate and lasting impact locally. The availability of quality information at public exhibitions neglecting reasonable alternatives, was inadequate in alerting locals about the impact of the proposed scheme, but despite that it is conceded that resilient solutions to the problems of the M4 around Newport are necessary (ID90).
- 6.467 However, the unjustified, unsustainable and damaging scheme should be rejected because:
- it would be too grand for the limited need because future traffic and toll-free increases are over estimated whereas construction time has been underestimated*;

- long-term sustainable benefits would not accrue;
- the improved A465 will provide resilience for the M4 and reduce traffic on it;
- of the impact of the unacceptably large and complex Undy/Rogiet junction;
- of the effect on heritage assets;
- noise increases are underestimated, whilst the Magor Marsh wildlife area would suffer disproportionate adverse effects;
- the vulnerable Levels would face extra and new development pressures which would be contrary to their ecology and historic landscape interests;
- new roads attract additional traffic, thereby negating initial improved journey times, and
- the scheme would conflict with the Well-Being of Future Generations Act and has drawn criticism from the Future Generations Commissioner.

6.468 Instead, the following measures to encourage modal-shift would be sufficient to negate the need for the scheme and should be investigated:

- the South Wales Metro rail and bus systems, new railway stations and park-and-ride schemes;
- the Blue Route (Alternative 1 or 2) road improvement, with finalising improvement of the A465 trunk road;
- active travel schemes, including a shared use path from Undy to Rogiet, closure of existing M4 junctions and traffic management modifications to the road, and
- additional average speed checks on the M4, with variable message signs illustrating off-motorway route journey times and modifications to the layout of the existing motorway.

6.469 The residents are concerned that the scheme would have a devastating impact on the Gwent Levels and disconnect outlying hamlets such as Llandeenny, Knollbury and St Brides Netherwent. The scheme would have long-term impacts on the landscape, cultural heritage and setting of the area. The prime example of this would be the demolition of the listed building at Woodland House and the adverse impact on the standing stone at Undy.

6.470 The motorway would be at a high level to cross the rail line at Llandeenny, with consequent increased noise impact for north and west Magor. The noise modelling does not take account of variables such as

wind speed and increased traffic on the A4810 and the noise mitigation proposals are completely inadequate, especially for the residents of Llandevenny.

6.471 The scheme would impact on the tranquil nature of areas of countryside nearby, such as Magor Marsh and the Gwent Levels south of the A4810 and have a significant detrimental impact on local amenity and quiet enjoyment of property. This is contrary to the WCFG Act: Well-being goals 1 and 2.

6.472 If the scheme is adopted it should be modified to provide:

- local connections to Llandevenny, Rockfield, Knollbury and St Brides-Netherwent and continuous access throughout construction for Bencroft Lane businesses;
- adequate noise protection for Llandevenny, including enhanced noise barriers;
- contractor bound apprenticeships for local schools;
- guaranteed active travel provision;
- the re-location of Magor vicarage near the town, and
- modified noise barriers near Magor, to prevent the reflection of noise towards Llandevenny, and along the north western side of Magor and Undy.

*Inspector's Note

At the Inquiry Councillor Taylor orally complained that the representatives of the community were burdened by "no equality of arms", in other words, having no traffic, legal or other expert to advise them. I assured them that if I thought Mr Whittaker (on traffic matters) or any others were not being straight or overly complex with witnesses, I or Mr McCooey would challenge them. No issues arose.

Under examination Councillor Taylor explained that the group did not represent the Community Council but had its support. They had contacted about 40% of local residents and thought about 25% of those contacted were opposed to the scheme.

WG response

6.473 The scheme would benefit Magor and Undy by:

- meeting the needs of the growing local population by improving accessibility and reducing congestion;
- reducing HGV and other traffic through the built-up area thereby alleviating the need for local expenditure on the County Council's bypass scheme;
- enhancing access to the Severn Tunnel railway station, free of expenditure by the local authority;

- local improvement to sections of pedestrian and cycle-ways, and elsewhere, and
- providing new woodland and a large environmental mitigation area south-east Undy thereby enhancing the amenity value for local residents and improving the environment.

6.474 The traffic predictions have taken account of improvements to the A465. The additional traffic which would use the motorway when the tolls are removed or reduced has been calculated. All currently planned public transport enhancements have been included in the assessment of the scheme. The closure of existing junctions would not reduce the need for the scheme whether singularly or in combination with other traffic management improvements to the sub-standard existing motorway.

6.475 The contractor would be required to allocate at least 12% of the total labour costs to new entrant trainees who have an apprenticeship, trainee or employment contract with the contractor or subcontractor's and an acceptable training programme would be introduced. This would maximise the local economic benefits arising from the scheme, both in the short and long-term and be good for future employment opportunities.

6.476 Criticism of the quality of the public information exhibitions is wrong. It is a fact that an evaluation survey of attendees, at the time of the exhibitions showed 90% tended "to agree or strongly agreed" that the exhibitions, helped them to understand the proposals. 92% confirmed that they had found all the information they wanted about the scheme. Many alternatives were thoroughly considered and published over Gwent for comment. The Inquiry has been properly notified and is frequently featured in the media. At earlier consultations over 100 alternatives were considered before Ministers selected the preferred scheme, a process that has been judged to be lawful.

6.477 The Blue Route would fail to address the problems of the M4 or achieve the objectives of the scheme and the public transport enhancement measures proposed, if taken together, would only reduce traffic flows on the M4 by up to 6%. That would be inadequate to tackle the problem that exists today let alone in the future as traffic grew. In contrast the scheme would provide good value for money and be sustainable.

6.478 The scheme accords with the definition of sustainable development set out in the WCFG 2015 Act and its development has been in accordance with the 5 ways of working required by the Act.

6.479 It is accepted that new schemes induce traffic but only by a few percent in this case. That should be compared to the predicted general increase in traffic as set out in the Department of Transport report on Road Traffic Forecasts 2015, which indicates that between 2010 and 2040 general traffic growth would be in the range of 19% to 55% irrespective of induced traffic. On the strategic road network that growth would come

into the range of 29% to 60% between 2010 and 2040. All relevant road or public transport schemes have been modelled in the transport model for the scheme. However, the addition traffic which will use the M4 from the removal or reduction of the Severn Crossings tolls has not been included*.

*Inspector's Note:

*Confirmation that the UK Government was going to remove the tolls from the Severn Crossings was announced subsequent to the appearance of the Community Council and the rebuttal of their case. Councillor Taylor, during the last week of the Inquiry, confirmed orally to the Programme Officer that she did not wish to present further evidence to the Inquiry on this or other matters.

- 6.480 The scheme would have adequate capacity for the future and journey times would be improved and sustained into the future. No additional burden would occur to any other local road. Its construction would satisfy the wish of 89% of firms (CBI survey) who regard investment in the motorway network as crucial or beneficial and it would reap wider economic benefits. It would offer good value for money even without toll removal. The increasingly common layout of J23 is required to allow for the connections to the M4, M48 and B4245.
- 6.481 Should the scheme proceed, further discussions would take place with local people over the temporary closures to side roads and the necessary temporary diversions.
- 6.482 It is accepted that there would be adverse impacts on the landscape but, overall, they would be acceptable. The nature reserves in the Gwent Levels would not be significantly affected and the ancient monument-standing stone at Undy would be protected by a small retaining wall. A signposted pathway would be constructed to allow access to the standing stone and that would be an improvement of public accessibility over the current situation. The scheme would have an adverse effect on the historic landscape of the Levels. No development on the Levels is earmarked in the Newport LDP and any proposed would be subject to planning control and national planning policy.
- 6.483 The distribution of the proposed noise barriers has been carefully considered and optimised to maximise the mitigation located to the greatest number of people without resulting in unacceptable effects across the mainly low-lying area of the scheme. High-absorbing noise barriers could not be justified to protect Llandevenny (PIQ136).
- 6.484 The scheme would contribute to achieving the well-being goals set out in the WCFG 2015 Act, its development has been in accordance with the Act and its design would satisfy the definition of sustainability whilst Alternatives 1 and 2 (the Blue Route) would not.
- 6.485 The scheme would include enhanced active-travel measures, including joining the shared route from the B4245 to key points in the vicinity.

Mr P J Cromwell (O099)

6.486 Mr Cromwell, a long-standing resident of Rogiet, presented a large petition to the Inquiry objecting to the alignment of the proposed motorway from the B4245 to the M48 at Llanfihangel Rogiet with one signatory supporting the scheme. He also presented a newspaper report, which he endorsed, highlighting the need for the scheme to be built quickly in order to facilitate economic development in South Wales (ID38).

6.487 Mr Cromwell proposed the following:

- reduce the traffic pressure on the B4245 between Caldicot and Magor and on the road access to the Severn Tunnel Junction railway station
- a detailed study of the effects of the scheme on the Magor area, including the potential threat of flooding from the two water pontoons proposed near the cottages and Old Court Farm
- adoption of the Green Route which would preserve the Magor services as they currently are and reduce the CPO land take near Undy, Rogiet and Llanfihangel, and
- build the M4 relief road quickly to alleviate the growing problem, as requested by 60 business leaders in Wales who recognise the damaging effects of congestion on the prospects of indigenous firms and their efforts to attract new investment.

WG response

6.488 The proposed connection between the B4245, M48 and the motorway network at J23 would provide an additional connection to the strategic road network and improve local accessibility, including access to the Severn Tunnel railway station. Monmouthshire County Council has carried out a public consultation regarding access and parking facilities at the railway station and the Council is responsible for any associated proposals which may emerge.

6.489 Traffic volumes along the B4245 are forecast to reduce both through Magor and east of Caldicot because traffic would reroute to use the proposed new junction to access the motorway network, but traffic would increase on the B4245 from Caldicot to Rogiet. On the B4245 through Rogiet the 2022 flows would increase from 12,500 vpd to 14,350 with the scheme opened. This increase in traffic would not threaten the carrying capacity of the road (PIQ/060).

6.490 The CPO in the Rogiet area obtains land necessary for water treatment areas, road drainage, and the proposed junction on the B4245. None of this land is included in the Monmouthshire LDP allocation for housing. Land has also been included in the CPO for the construction of water treatment lagoons and earthworks which would protect them from being inundated with floodwater from the wider floodplain.

6.491 Mr Cromwell's point about the motorway service station is noted whilst ongoing discussions with that company continue.

6.492 A statement of common ground between WG and Mr Cromwell is set out at ID/038.

Mr Alan Wilkins of The Light Rail Transit Association (O6901)

6.493 The Association recognises that there is a problem of congestion on the M4, which is an impediment to the economic prosperity of the whole of South Wales. It believes that there are better methods of solving the problem than the proposed scheme. Central to the solution is the proposed South Wales Metro which could be developed through a tendering process for the next Wales and Borders rail franchise in 2018. The contract could stipulate that the contractors, in their bids, must include non-road-based methods of alleviating the motorway congestion by proposing rail alternatives. Innovative funding could be drawn from the budget of the cancelled M4 project to provide the necessary capital outlay for such a scheme (ID/122).

6.494 The Association also recognises that reducing tolls on the Severn Crossings would substantially increase road traffic to and from England. To counteract that inevitable surge in traffic the Association believes greatly improved park-and-ride facilities and train services should be provided near the Welsh end of the Severn Crossings. Parking facilities in the main Welsh destinations such as Cardiff and Newport should also be provided and be incorporated into the Metro proposals. This, coupled with enhancements to the South Wales main railway line, the line to Hereford and others could alleviate motorway congestion to such an extent that it would eliminate the need for a new length of motorway and thereby save the natural scenic and environmental assets of the Gwent Levels and Newport Wetlands. Of particular concern is pollution which could arise from the Oslo factor, arising from the road surface/tyre interface.

6.495 The main railway line could also be enhanced to accommodate additional freight. Having regard to demographic changes resulting in less car use this package of rail-based alternatives would be sufficient for the foreseeable future. However, should the scheme be built it would be important to ensure that the proposed bridge over the railway at Llandeenny would not frustrate the development of a Magor and Undy "walkway" station and the River Usk Bridge could accommodate non - motorised user provision.

WG response

6.496 It is accepted that the construction of the motorway across the Gwent Levels would adversely affect the area but the magnitude and significance of those effects would be acceptable.

6.497 Any pollution threat to watercourses from the Oslo factor would be catered for by the positive drainage measures, including filtered lagoons, grassed water holding channels and reedbeds incorporated into the

scheme. The air quality assessment used to justify the scheme included emissions from brake and tyre wear and road abrasion. The results showed that there was no exceedance of air quality standards for fine particulate matter and the proposed scheme would only result in insignificant changes in PM₁₀ concentrations.

- 6.498 It is accepted that the South Wales Metro would be of considerable benefit to the region but its effect on the M4 traffic flows, when coupled with all other current public transport enhancement programs, would be minor, and would only remove a maximum of 6% of traffic, which is roughly equivalent to 2-years growth on the motorway (ID073).
- 6.499 The motorway currently has a problem. This would grow sharply over time but completion of the Metro could not be delivered for years. Changes to the demographic constitution of the UK and the advent of autonomous vehicles would not have an impact on the M4 for decades and no definite proposals are currently being considered in the UK for a massive shift in freight transport away from roads to rail (ID/122).
- 6.500 The potential walkway station is proposed at a location about 1.3 km from the proposed motorway bridge at Llandevenny and as such the scheme would have a negligible impact upon it (PIQ040).
- 6.501 The case for providing for non-motorised user use across the River Usk Bridge is weak. Such provision would be costly, increase the land take from the SSSI and Newport Docks and have security and safety implications for the Port of Newport below. The existing A48 SDR Bridge across the Usk provides a suitable alternative (PIQ/120).

Mr A R Pickup (O77)

- 6.502 Mr Pickup has extensive knowledge of the drainage system in operation across the Gwent Levels and has provided advice to many bodies on wetland management throughout the UK. His objection centres on the adequacy of the proposed road drainage system to protect the Gwent Levels.
- 6.503 The SSSIs depend on the reed system of ditches, which in turn rely on suitable water quality. Their boundaries were deliberately drawn to enclose the catchment areas draining to the reens. The proposed reed beds have limited capacity to clean dirty water and chemically do not work in the long-term. Toxic water would get into the SSSIs, and water-soluble contaminants would present a particular problem as would the risk of spillage. WG's proposals for dealing with run-off discharges would not conform with DMRB HD 45/ 09.
- 6.504 It is accepted that the proposed drainage would exceed normal design standards. The rainfall data used in the design of the drainage system is inadequate and not reflective of climate change consequences. Greater storm intensity could prevail and overwhelm the drainage system. There has been an over estimation of the effectiveness of the reedbed treatment system, particularly during high flow rates and its ability to

remove phosphates. There appears to be a discrepancy between the known ability of grass lined drainage channels to deal with dissolved contaminants and the data set out in the ES. Highway run-off should only be discharged into main rivers and where there would be a risk of overtopping the channels should be banked to ensure that contaminated water could not overspill.

WG response

- 6.505 Estimates of run-off flow rates conform to industry standards, UK guidance and available data, and when applied to the drainage design show that there would be no need to safeguard the receiving channels from over-topping (WG1.17.1).
- 6.506 The water treatment areas and the grass-lined roadside channels have been designed to ensure that there would be a very high likelihood that any pollution would be minimised to an acceptably low level. The drainage system would be maintained by regular inspection, maintenance schedules and the proposed discharge would be subject to a detailed programme of monitoring for both water quality and biological parameters to provide certainty of performance. Water discharges to the SSSI would meet the requirements specified by NRW.
- 6.507 The proposed use of grass-lined channels, a pollution control lagoon, an attenuation lagoon and a reedbed would exceed any similar system currently in use within the UK serving all-purpose roads or motorways. Mostly those systems are much smaller than that proposed for the Gwent Levels, for which each of the four components of the drainage treatment strategy would afford significant and complementary mechanisms for the entrainment and reduction in potential pollutants. The interception, slowing and storage of road run-off prior to cleansing through the purpose-built reedbeds would provide water quality discharges at an acceptably slow rate, with reductions in concentrations of potential pollutants to levels that do not pose an unacceptable risk to reens. Suitable commitments requested by NRW would be put in place.
- 6.508 The proposed design has been subjected to the Highways Agency Water Risk Assessment Tool (in accordance with DMRB) which has been developed collaboratively with the Environment Agency in England. The scientific work used for the development of the tool has been extensive in considering various potential pollutants and their effects on a range of plants, invertebrates and fish species. It is therefore fact that the ecological interest of the Gwent Levels has been taken into account by both the scale and scope of the proposed run-off treatment capability for the scheme and the risks properly assessed.
- 6.509 The scheme has been fully developed in accordance with the DMRB and the assessment of the multistage water treatment proposals have utilised the median efficacy data recommended for the first treatment stage, with all subsequent stages using only half of the recommended efficacy values.

- 6.510 The proposed grass channels would be lined so that run-off water is retained within the channel. The cross-sectional area and length of the proposed channels are both larger than typical swales routinely incorporated into road drainage schemes. The gradient of the proposed channel would therefore be very low to allow their use on flat embankments crossing the SSSI. Such low gradients promote very slow water conveyance whilst preventing overtopping under all storm rainfall events within a 100-year return period, allowing for 30% climate change. The effect of this would be that once run-off water percolates into the topsoil or evaporates due to the action of sun and wind, dissolved metal pollutants precipitate and become undissolved and typically form relatively insoluble compounds such as oxides or carbonates. That process would significantly aid the reduction in pollutants with a potential of entering the drainage lagoons system.
- 6.511 The reedbeds have been designed to protect the reens from flow variations during storms. Their purpose is to filter out potential pollutants, and a programme of inspection and maintenance would be utilised as an essential management tool to guarantee the continued proper functioning of the reedbeds.
- 6.512 Because of the reserves within the system it would not be necessary to discharge all water to main rivers, a proposal accepted in principle by NRW.
- 6.513 A motorway run-off drainage network connecting directly to the sea or main rivers would be unsustainable because of the flat topography, the need for siphoning each time an existing transverse reen was encountered by the direct drain and continuous pumping.
- 6.514 The risk of overtopping would be less than 1% per annum because of the freeboard built into the design and the design parameters used.

Ms Jane Blank (O6910)

- 6.515 The scheme, which is not justifiable on grounds of congestion, should not proceed because it would be incompatible with the 2015 Act and:
- the money could be redistributed to education in Wales or other causes;
 - its construction would embrace a short-term mentality creating huge problems for future generations and destroy eco-systems and the genetic pool contained therein;
 - it would destroy, fragment and displace wildlife;
 - it would fail to adequately mitigate its environmental damage and would be unsustainable. *

Inspector's note

**Subsequent to her appearance at the Inquiry Ms Blank, in writing to the Programme Officer in a joint email with Mr Jeremy Randles, expressed the view that there were reports of the proposed scheme having an inadequate capacity for the future. In that case, instead of removing tolls from the Severn Crossings they should be retained as a revenue stream for projects throughout the whole of Wales. The Inspectors were shown a copy of that correspondence. I have had regard to those suggestions and also WG's response to them in drawing up my conclusions.*

Following the decision to remove the tolls from the Severn Crossings and the substantial increase in scheme costs that would be occasioned by the late proposals of WG to undertake widespread works within Newport Docks, Ms Blank, as a non-statutory strategic objector sought permission to submit fresh evidence to the Inquiry in reaction to those new developments. Her supplementary statement is summarised immediately below (ID/195).

6.516 Ms Blank is concerned about the upwardly revised cost, risk and timeframes and urges support for the inventive use of existing infrastructure wherever possible. For that reason, she is championing the Blue Route which, in her opinion, could be completed more cheaply and quickly, with a much smaller new road footprint.

6.517 Ms Blank also questions whether:

- the value of the pound would affect costs;
- the current design cost would equate to the build cost, and
- given the extra traffic envisaged as a result of withdrawing the tolling, has the use of variable hours charging for use of the motorway been explored and costed.

The supplementary evidence of Ms Blank

6.518 The increasing costs of the scheme are a concern as is the destruction of existing wildlife rich environments. Brexit may cause a devaluation of the pound and increased construction costs. The development of driverless cars for hire, electrification of the London to Cardiff railway line, electric cars and the increase in home and flexi-work patterns may all reduce the need for travel by car, decreasing congestion and its attendant emissions which result in air pollution. They may render any new motorway obsolete before it has been built. WG should therefore radically rethink its response to perceived problems by deploying smart charging using cameras on the motorway, along the lines of the congestion charge operated by many bodies to control traffic flow at peak times by variable time charging. These cameras are already in existence and the system should be developed in an innovative way using number plate recognition or smart cards. This would result in reducing congestion whilst minimising cost and the money generated from the charges could be used for local public transport development and traffic management schemes around Newport. The money saved could also enable WG to invest in a plethora of small scale Wales-wide projects for improving transport. These ideas would not involve disrupting the flow of traffic on the motorway and would persuade drivers to travel in off-peak periods thereby spreading the congestion load.

6.519 Ms Blank was also concerned that:

- VAT had not been included in the cost estimate for the scheme or in the cost benefit ratio;
- whether all the extra costs involved with the Newport Docks have been taken account of;
- whether cost over-runs would have to be carried by WG, and
- whether inflation has been fully taken account of, and the cost accurately estimated.

WG response

6.520 The distribution of Government funding is a policy matter and not for any Public Local Inquiry. Problems of congestion, pollution and incidents occur at the present time and would become intolerable if left unattended. The scheme would solve them and in so doing conform to the 2015 Act which advocates "taking action" today to solve an identifiable problem. Public transport improvements, in total, would only remove an insignificant amount of traffic from the M4 (ID/073). The scheme accords with the sustainable development principle and is not simply about moving cars more quickly but also satisfying the demands of industry, business, people and the police. The effect of the scheme on the Gwent Levels, the extensive mitigating of those effects and the magnitude of disturbance to the Levels is set out in the ES.

6.521 In terms of Ms Blank's late concerns at the Inquiry the following points are relevant:

- how exchange rates will fluctuate over time is impossible to predict and in any event the link between the exchange rate and the cost of the scheme is at best indirect and subject to lags and the extent to which materials used in the construction of the scheme would be imported. In this regard the project team has expressed a commitment to local purchasing policies wherever possible and appropriate and that is expected to reduce the proportion of scheme costs which relate to imports. Therefore, the majority of expenditure on the scheme would largely be unaffected by exchange rates. In any event the risk and optimism bias of £157 m in the scheme cost estimate would soak that up;
- the full cost of the works in the Newport Docks is included in the economic appraisal of the scheme;
- the risk of cost overruns is shared between the contractor and WG under the pain-gain mechanism of the contract, which is specifically designed to encourage efficiency and align the contractor's interests with those of the employer. A target cost is established and, if exceeded, the additional cost would be shared between WG and the contractor. Conversely, if the outturn costs proved to be lower than

the target, the benefit is also shared. This mechanism uses a sliding scale which means that the larger the gap between the outturn cost and the target the greater the risk is borne by the private sector. Conversely, if savings are achieved against a target then the situation is reversed so that the larger the cost saving the greater the share is allowed to WG (taxpayer). Details of this are set out in PIQ 55;

- the cost of borrowing has not been included in the economic appraisal which compares the benefits of the scheme against the cost of the resources required to deliver it. Whether the scheme is funded through UK Government borrowing or capital budgets is essentially a budgetary issue within government. Should WG decide to allocate UK Government borrowing to other transport schemes, or indeed any other area of public policy, and use more of its capital funds for the proposed motorway, this should not lead to the conclusion that value for money of the scheme has improved or that the value for money of other transport projects has worsened;
- it should be noted however that the current rate of return on government debt is substantially lower than the discount rate applied in economic appraisal. In this real circumstance the effect of treating a portion of the costs as a stream of future debt repayments would improve the BCR for the scheme;
- for the purposes of the economic appraisal all costs and benefits are presented in a consistent 2010 price base such that they can be directly compared. That is standard practice and it would only be necessary to adjust the scheme budget where inflation was expected to increase in real terms. In the long-run construction prices have risen at a similar rate to prices in the economy generally and there is no justification for the inclusion of inflation in any analysis or costings;
- a quantified probability has not been attached to the cost estimate for the scheme but the cost using the economic appraisal is inclusive of risk allowances and optimism bias and thus represents the government's best estimate of what the scheme would cost;
- the tolling regime at the Severn Crossings is a matter for the UK Government, which has decided to remove tolls after they consulted on the future level of them. The Crossings are now in public control and the tolls will definitely be removed before the end of the year. Variable hours charging is a matter of government policy which falls outside the scope of the Inquiry but there is no WG policy in favour of tolling roads in Wales;
- Ms Blank's preference for the Blue Route and the use of smart charging using cameras along the lines of the congestion charge to control traffic flow at peak times is noted. Numerous assessments and consultations have been undertaken to develop a solution to

the transport related problems associated with the M4 around Newport since the early 1990s, with more than 100 options and packages of measures considered and appraised as part of the development of the issue. This led to the Welsh Ministers' decision to proceed with the published scheme but in response to the publication of the draft Schemes and Orders alternatives have been suggested again. Accordingly, a full review of the alternative Blue Route was undertaken, both before and after the publication of the draft Schemes and Orders and that confirms that the alternative would not address the problems or achieve the objectives of the scheme. All relevant material, at length, has been put before the Public Inquiry;

- the assumption that it would be cheap and quick to introduce smart charging using cameras is incorrect. Introducing a congestion charge levy imposed on drivers to drive within a defined area would require the purchase and installation of specialist equipment in addition to the necessary enforcement resources required to implement it. The existing facilities and administrative process are not in place and would not be readily available as they would be subject to the necessary statutory procedures. The impacts of a congestion charge on businesses, economic prosperity, social inclusion and social fairness are likely to be points of challenge by a wide range of potential objectors to the potential introduction of a levy to users of the motorway. This is all a matter of policy which falls outside the scope of the Inquiry. However, it is clear that there is no WG policy in favour of introducing tolls on Welsh roads.

Late e-mails from Mr Jeremy Randles (O6921) and Ms Jane Blank (O6910)

6.522 Mr Randles and Ms Blank, in similar e-mails, advocate that WG, instead of building the scheme, should vary the toll charges on the Severn Crossings to reduce peak flows of traffic using the existing M4 and thereby diminish delays in a managed fashion (ID/101).

WG response

6.523 Responsibility for the Severn Crossing tolls has not been devolved to WG and those powers remain with the UK Government in Westminster. It is not government policy to introduce a variable tolling regime on the Severn crossings and that was confirmed on 18 July 2017 when the UK Government announced that the tolls would be abolished by the end of 2018.

Mr M and Mrs L Smith (O210) with Mr G and Mrs J Wynton (O287) – the Green Route-Alternative 3

6.524 The objectors live in two cottages (dating from at least 1766) on higher ground overlooking the proposed junction 23A (J23A) at a distance of 600m. The proposed junction would further blight the views from the

cottages due to its excessive size and the loss of existing planting. The visual effects would not be mitigated adequately. WG assesses a period of 15 years for mitigation to be effective but evidence from planting provided 20+ years ago shows that this would not work. The effect would be exacerbated by the 160 plus road lighting columns. There would be a significant detrimental effect on visual amenity for residents of Windmill Cottages.

6.525 It is proposed to extract around 1 million m³ of stone from Ifton Quarry using a haul road around 150m from the cottages. Considerable noise and disturbance would be caused to residents during the construction period and the value of their homes would fall.

6.526 This combined objection also promotes an alternative arrangement near J23A in the vicinity of Undy and Llanfihangel in order to reduce the impact that the scheme would have on these areas. This is alternative 3, known as the Green Route.

6.527 In criticising the scheme attention was drawn to the following:

- the draft Orders proposals would move J23 eastwards, which would precipitate both the eastwards relocation of the M4 Magor Services and an impact on the residential areas nearby, together with pressure for new development;
- the current rural nature of the area would soon become urbanised and that would swamp the tiny hamlet of Llanfihangel (PIQ100);
- the weak justification for the complex draft Order proposals at the eastern end of the scheme only cites access to a park-and-ride site at the Severn Tunnel Junction railway station and some relief to traffic on the local network as its basis;
- the draft Orders would not provide free-flowing movement from the westbound slip road from the existing M4 and the proposed dual carriageway;
- massive land-take would be needed for the complex hamburger arrangement at the eastern end of the scheme, with a direct impact on the local conservation area (PIQ100), and
- there would be a significant visual impact on the communities at Magor, Undy and Rogiet.

6.528 In contrast, Alternative 3 - the Green Route would provide a succession of local benefits whilst not being too disadvantageous for the route of the M4 and would be much more acceptable locally. This alternative is also reported on at section 7 of this report and its promoters consider its main benefits would:

- lessen the impact on the countryside

- remove the visual impact on Llanfihangel, Rogiet and Undy
- reduce land-take from the area east of Magor
- fit better with the existing Magor MSA, preserve employment there and protect the business
- remove the impact on the Llanfihangel conservation area
- remove the threat of visually intrusive impacts on the landscape
- utilise the underused M48
- facilitate access from Caldicot and the surrounding area to the motorway better than the scheme
- reduce traffic on the local network, along the B4245 and at Pwllmeyric and Chepstow
- achieve all the objectives of the scheme whilst preserving the countryside
- be substantially cheaper than the published scheme
- remove the threat of a 12-lane carriageway near Magor
- have less environmental impact generally than the scheme which would be inconsistent with WG's sustainable development duty, climate change commitments and aspirations
- retain current viable farming enterprises
- facilitate good access to the Severn Tunnel Junction railway station and be compatible with proposed local road improvements in that area, and
- remove all threats to properties in and around Magor and prevent further blight on that community.

WG response

6.529 The visual impact of the scheme on Windmill Cottages was specifically assessed in the ES. The visual impact would be large adverse during construction decreasing to slight adverse in year 15 once mitigation planting has matured so as to partially obscure views of the new junction. The residual impacts have to be considered in the context of the Scheme as a whole, which was assessed as acceptable. There would be a change in lighting visible from the properties. However, in the context of existing lighting present in the area and the design of the new lighting to minimise light spill, the changes are not assessed as significant.

6.530 There would be a slight increase in the current noise levels. The magnitude of effect is minor adverse in the short-term reducing to a

long-term negligible effect.

- 6.531 The proposed haul road from Ifton Quarry would be in the same position as that used for construction of the 2nd Severn Crossing. The use of this route would halve the number of vehicle trips required and avoid using public roads. The distance between the cottages and the haul road means that no significant noise effects are predicted to arise during construction (PIQ85).
- 6.532 The adverse landscape effects of the scheme are acknowledged but the Green Route would create a new road corridor through open countryside between Llanwern and the existing M4 to the west of J23A whereas the scheme would follow an existing road corridor (A4810). Overall, the Green Route would have a greater visual impact than the scheme. It would pass through more rural land between the Wilcrick Hill and Bishton instead of semi-urban land between Magor and the A4810. As such it would affect new and different visual receptors in undisturbed countryside.
- 6.533 Whilst it is accepted that the Green Route would not have an impact on the conservation area, the existing M4 already does. However, the Green Route would impact on a different sensitive area where extensive earthworks would be required for the alternative.
- 6.534 The form of junction being proposed for the scheme at J23 is necessary to allow a connection between the proposed motorway, the reclassified M4, M48 and B4245. This innovative form of junction is becoming increasingly common in the UK and should not give rise to any complicated manoeuvres. With the Green Route the connection between the B4245, M4 and M48 would not be provided. That would be a disadvantage in the event of a closure of the M4 at the Severn crossing relative to the proposals provided by the scheme but it would also be necessary to reconstruct the motorway arrangements near J23A to provide additional lanes each way since this section of the motorway is currently only a dual two-lane road and that would be insufficient to carry the projected traffic flows.
- 6.535 The alternative would create a new transport corridor through greenfield farmland and, due to the topography, the Green Route would require significant embankments to the west of Wilcrick Hill, up to 8 m in height. That would have an impact on the countryside and be costly.
- 6.536 The Green Route would meet 9 of the objectives of the scheme but 5 of them less well than the scheme.
- 6.537 The Green Route would avoid the need to demolish the Grade II listed Woodland House and would also avoid the prehistoric and Roman archaeological site to the west of Magor, in addition to having a lesser impact on the Llanfihangel Rogiet Conservation Area. It would have a slightly lower level of impact on the Gwent Levels historic landscape but would have an impact on the setting of the scheduled hillfort at Wilcrick

Hill. It would have an impact on the setting of the scheduled deserted mediaeval village just west of Wilcrick Hill as well as having the potential to impact upon buried archaeological remains in the area just south of the existing M4 as far as the South Wales mainline railway. It would also be likely to have some impact on the defined setting of the Grade I Registered Park and Garden of Special Historic Interest at Dewstow House and the settings of the Grade II listed Dewstow House and Grade II* and II listed structures nearby (PIQ/096, PIQ/097, PIQ/100).

- 6.538 It is accepted that the Green Route would reduce traffic volumes through the A48/A466 roundabout west of Chepstow but that advantage would also apply to the scheme. However, the Green Route would increase traffic flows on some sections of the B4245 relative to the position with the scheme in place.
- 6.539 The overall cost of the Green Route, inclusive of risk, is estimated to be £51 million higher than the scheme, principally because of the additional earthworks and material which would need to be imported. Its construction would result in more disruption to M4 traffic compared to the scheme, to the A4810 and access to Magor. It would take six months longer to build than the scheme due to the phasing of works at J23A and through the Tata Steelworks site where complex works associated with the railway line and drainage system would be necessary. The Green Route would have a slightly lower BCR at 1.49 in comparison to 1.65 for the scheme. It would delay necessary relief to the M4 (PIQ79).
- 6.540 The Green Route would have a lower impact on the Renwick and Llandevenny SSSI than the scheme but elsewhere its impact would be identical to that of the scheme. A new corridor of ecological disturbance would be created west of Wilcrick Hill and overall the effect of the Green Route and scheme on biodiversity is similar.

Mr Tyrone Broome – representing residents of Llandevenny (O078)

- 6.541 The residents of Llandevenny strongly object to a section of the scheme near the hamlet of 14 homes, a family-run garage and a small farm which is bordered by the main Swansea to London railway, Gwent Euro Park and the A4810. It is quiet and rural with very limited traffic. The scheme would increase air pollution and noise by 6 to 7 dB. With the erection of a noise barrier on the Magor side of the proposed motorway, traffic noise could be reflected back to affect the village. Therefore, noise barriers should be erected on the western side of the proposed motorway as well and the Monmouthshire County Council encouraged to barrier the A4810 also.

WG response

- 6.542 There would be negligible impact on the air quality at Llandevenny. Whilst it is practicable to erect a barrier on the western side of the proposed motorway, the hamlet would still be subjected to dominating traffic noise from the nearby A4810. With the scheme in place the village

would experience a noise increase of about 5dB, rising from the low to mid 50's decibels. Noise barriers could not be justified (ID/075).

Mrs Carol Jacob (O252)

6.543 Mrs Jacob is opposed to the scheme because it would:

- be unsustainable and deny other parts of Wales money
- increase the level of traffic on the network and emissions that would run counter to WG's policy of reducing carbon
- be premature to construct before the Metro was in place
- not improve business prospects for smaller companies and it could harm the docks
- destroy homes and a listed building, and
- its impact on the Gwent Levels would be unsustainable because replacement mitigation areas should be on a scale of 33:1 (new area v removed area) as suggested by those concerned with the developing HS2 railway in England.

WG response

6.544 The allocation of funding is not a matter for the Public Local Inquiry. The scheme being carbon neutral is sustainable and it is clear that in reducing traffic congestion, pollution from emissions would be reduced. Induced traffic would be no more than about 1% of the background traffic growth which is forecast to occur irrespective of the construction of the scheme. The scheme would be beneficial in terms of road traffic noise with the number of properties which would be adversely affected substantially outweighed by those which would be relieved.

6.545 The scheme would be of benefit to the Newport Docks providing a much more commodious access to the main dock gates as well as access to key employment sites in the south of Newport. It would improve productivity the functioning of the labour market, stimulate new investment and improve perceptions of South Wales as a place to visit and do business. The CBI support the scheme and there is no reason to suggest that small businesses would not benefit as well.

6.546 The scheme would not prevent the South Wales Metro from proceeding with Government policy encompassing both. Public transport improvements, in total, would remove an insignificant amount of traffic from the M4 (ID/073).

6.547 The scheme would only affect about 2% of the Gwent Levels and effective mitigation would be undertaken. There is no scientific basis for the advocated 33:1 ratio for replacement land.

Ms Pippa Bartolotti - Wales Green Party (O1027)

- 6.548 The Green Party's case for maintaining the do-minimum scenario is based on the belief that such a situation would lead to a shift from road to public transport travel across South Wales. This would assist the aim of reaching a zero-carbon society and assist those countries currently suffering because of oil extraction from their land. The people who currently use the M4 do so because of the hopeless state of public transport in and around Newport. Only a 10% shift from cars to public transport is needed to remove the traffic problem at Brynglas.
- 6.549 WG's published brochure setting out the vision for the scheme misled the public in terms of the erroneous claim that the existing motorway is 95% full. It is only in one direction, at peak times, that the figure reaches 95%, but on average it is only 76% full at peak times. The brochure says that 6,500 new jobs would be created, and that implies that they would be local, whereas that is unlikely to be the case. The claim that the existing motorway has a higher than average accident rate is also misleading. Between 2002 and 2008 the stretch of motorway between Magor and Castleton only reached 91% of the national rate for accidents. The air quality benefits are exaggerated and the basis for building a 19 mile stretch of new motorway at a cost of £1.2 billion, as set out in the brochure is discredited.
- 6.550 The traffic predictions, upon which the case for the M4 is based, do not take account of the A465 improvements or the aging Welsh population, a category that drives less than younger people. Generally, road traffic trips are currently showing a lower rate of increase and that would probably continue for the next 30 years.
- 6.551 The motorway scheme would represent poor value for money. It would increase traffic on the A48M. Instead WG should promote an integrated public transport system, including the Metro, which is due to be completed by 2023, electrification of the main South Wales railway and a rail transit system, which could run from the Sudbrook pumping station, east of Caldicot, to Cardiff, connecting to the population and employment hubs south of Newport. These schemes would negate the need for a new motorway and support and encourage long-term carbon-free prosperity across Wales, providing better access to international markets. They could be better value for money as demonstrated by the Nottingham Tram line. A similar system could be deployed along the corridor of the South Wales main railway at only a fraction of the cost of building a separate tramline along this corridor (ID/023).
- 6.552 The public transport scheme would not restrict the development of the Port of Newport, a business which would be even more important after the UK leaves the EU. It would be much more in keeping with the aspirations of the inter-governmental panel on climate change and the elimination of induced traffic which a motorway scheme would create.
- 6.553 It would also help remove unemployment from the valleys thereby saving

the UK significant money in getting people back to work. It would also satisfy WG's goals, and free-up the motorway for residual traffic.

6.554 The proposed M4 would, if built, cause environmental damage to the Levels with a system of culverts that is unproven.

WG Response

6.555 National studies and analysis have established that delays and unreliability of journey times start to become evident when traffic flows are about 80% of the ultimate theoretical capacity of a particular road. It is evident that on all sections of the motorway from Magor to Castleton the links between the junctions are frequently under stress and this causes a breakdown in free-flow. Apart from the traffic loading between the junctions, the substandard nature of the M4 and the close proximity of its junctions further reduces its ability to cope with current flows. Even without traffic growth, the M4 is already problematic. Public transport improvements, in total, would remove an insignificant amount of traffic from the M4 (ID/073).

6.556 The traffic predictions take full account of the dualling of the A465 Heads of the Valleys road and are fully in accordance with the Department of Transport's predictions for population growth and demographics.

6.557 WG is promoting both the M4 motorway and the Metro but public transport improvements, even if they could be achieved instantaneously, would only reduce traffic flows on the M4 corridor by a maximum of 6%. The Metro construction is years away but it is an inescapable fact that over the last five years traffic has grown steadily between Magor and Castleton. That has to be addressed.

6.558 It is accepted that the motorway scheme would increase traffic flows on the A48M towards Cardiff by about 2%. That would not significantly affect that particular road.

6.559 Building the M4 motorway would significantly improve air quality in and around Newport and a comprehensive plan for mitigating the effects on the reen network across the Gwent levels would be exercised.

Dr Catherine Linstrum (O92)

6.560 In times of economic adversity, vast sums of money should not be spent on this short stretch of road. In an effort to gather public support for the scheme WG has been selective in its published information and advice. No public transport alternatives were presented to the public and little consideration was given to the Blue Route before the decision to proceed with the scheme was made.

6.561 The problems on the existing M4 have been exaggerated. This is evident from communications about accident rates, congestion and loss of business. Comparisons with similar stretches of motorway in the UK have not been presented.

- 6.562 The economic benefits of the scheme have been exaggerated, the business community is not unanimous in its support and no coherent business plan has been produced**. The public has been denied a straightforward demonstration of how the financial benefits stand in relation to costs.
- 6.563 An example of misinformation is the claim that the existing M4 has a higher than average accident rate. The out-dated police accident statistics had been derived from a period before traffic management changes to the motorway had occurred. Current accident rates have been falling, with the exception of the area immediately around the Brynglas Tunnels. The stretch of motorway which would be bypassed by the scheme has never reached more than 91% of the average rate of accidents for the UK (ID/016, PIQ/087).
- 6.564 WG has downplayed the impact that other solutions could have, including variable speed limits, matrix signs, the closure of junctions and maximising use of the SDR. Newport currently has six junctions on the motorway, which in turn draws traffic onto the local road network and causes congestion. Similarly, WG has downplayed the environmental and social impact of the scheme and has failed to consult adequately with the public about their transport needs.

Inspector's Note

*** It is noteworthy that Dr Linstrum did not regard herself as an expert on economics and that under examination at the Inquiry conceded that her statement, in more than one respect, was written on the advice of another person/s. However, as the statement which challenged the economic sense of the scheme was not withdrawn it was rebutted by WG - paragraph 6.570 below refers.*

WG response

- 6.565 It is an established fact that widespread consideration, over a significant number of years, was organised to consider the merits of alternative solutions before the decision to publish the scheme was made (WG1.1.1 para 3.7).
- 6.566 The material on display at public exhibitions recognised, amongst other things, that the M4 around Newport had above UK average accident rates on some sections, despite the variable speed limit system reducing accident rates on some other sections in its first three years of operation to below national averages. It is however accepted that a detailed note should have drawn attention to this detailed point, rather than the generality of accident rates being higher than average throughout.
- 6.567 Between 2012 and 2014 there were 38 accident cluster sites in a study area, of which 17 accident clusters were associated with the M4, mainly near junctions*. These are concentrated west of J26, at J25, west of J24 and at J23A. Within urban Newport there is a significant accident problem, with the city occupying position No. 16 in the top 25 cities in the UK in terms of road accidents. This may be associated with traffic pressures, not least associated with the diversion of motorway traffic

through the urban fabric of the area when frequent incidents and delays occur on the motorway itself.

- 6.568 In 2015 there were 1,053 recorded occurrences of day-to-day congestion recorded across Wales by Traffic Wales, with 889 related to the M4 between J24 and J26 westbound and J28 and J26 eastbound. This is an extremely high rate of incident on a very short stretch of road. These incidents, of themselves, cause congestion, the diversion of traffic, pressure on alternative routes, congestion on those routes and the potential for accidents to occur on the wider network (WG 1.1.1 para 8.9, WG 1.1.1 Appendix B, PIQ/087).
- 6.569 The effect of junction closures is currently being considered at the Inquiry but signposting on its own would not achieve any significant traffic reduction on the M4, nor would it provide additional capacity or resilience. The Blue Route has been considered in detail but it could not address the evident problems or achieve the objectives of the scheme. The variable speed limit system helps reduce accidents but it does not provide the necessary capacity or resilience needed (WG1.1.1 para 23.9).
- 6.570 In 2014, the Department for Transport undertook a comprehensive review of the linkages between transport and the economy which highlighted the main benefits in which transport improvements affect the economy, principally user benefits, effects on productivity, and impacts on investment, employment and GDP. Further studies have identified the strong effects of transport improvement on a number of firms and the levels of employment, estimating that a 10% improvement in accessibility would lead to a 3% increase in the number of jobs. Strong employment effects span up to 30 km from improvement schemes. The study found no strong evidence to suggest that effects are driven predominantly by displacement of employment from outer to inner wards nearer to the improvement scheme. In other words, the research found that highway improvements resulted in a net increase in employment over an area with a radius of at least 30 km (WG1.3.1).
- 6.571 It is acknowledged that not all businesses would benefit from the scheme but it does have the backing of CBI Wales and many others associated with business and employment across South Wales.

Inspector's note

**Subsequent to leaving the Inquiry Dr Linstrum challenged, with reasons, the accuracy of this part of WG response evidence and oral evidence given under re-examination of the traffic witness. However, in recognising this, no new substantial material points arose relative to what had already been established (PIQ/087).*

Mr Andrew McDermid (01336)

- 6.572 The scheme should not be built because it is not sustainable, particularly in respect of carbon emissions, which would increase as vehicle trips increase. No reliance can be placed on yet to be developed technologies but long-term rational thinking is required to advance schemes that

would reduce traffic. The traffic model used to justify the scheme would be obsolete before 2030. Driverless cars could play a significant role in reducing congestion on the M4 and make more efficient use of the same road space, with fewer accidents, effectively increasing capacity. Public transport improvements, in total, would remove an insignificant amount of traffic from the M4 (ID/073).

- 6.573 The scheme would increase the likelihood and extent of flooding due to destabilising of the weather and would run contrary to the 2015 Act. It would adversely affect Newport.
- 6.574 The link between infrastructure development and economic growth is undisputed but the question, in this case, is who would be the beneficiaries of the services provided by the scheme. This scheme may facilitate commuting to Bristol particularly as the Severn crossing tolls could be reduced and an unintended consequence of the scheme could therefore be increase in property prices in Newport.
- 6.575 The ecological and amenity value of the Gwent Levels and Wetlands should be retained, especially for families. The Levels are part of a unique larger ecosystem and would be subject to devastating loss should the scheme proceed, including a direct loss of territory in the Magor Marsh reserve. The reen drainage system would be fragmented and degraded. This would affect the whole entity of the system and that cannot be mitigated.
- 6.576 The provision of the proposed walking infrastructure would not be beneficial.

WG response

- 6.577 In reducing congestion, the scheme would reduce emissions to the extent that it would become carbon neutral in operation. In global carbon terms the scheme would be a drop in the ocean but without its construction the problem of carbon emissions would get worse in the long term. The assessment of future carbon emissions has conservatively assumed that no further technological improvement would take place beyond 2030 because it is difficult to predict beyond that period.
- 6.578 The scheme would not cause flooding. The Levels would be protected by the "Hold the Line Policy" of Government and an increased storage volume provided in the network reens.
- 6.579 Sustainable development policy was in place and acted upon before the 2015 Act and the goals now set out in the Act were appreciated by WG well before its publication. Every project has to consider equally each of the goals of the Act and the M4 has been modified to take account of some of those goals. The scheme would help air quality, reduce noise and improve public transport efficiency. It would assist the emergency services, improve health and reduce delays for holidaymakers. All of these are laudable goals.

- 6.580 The scheme would benefit residential areas of Newport both in terms of reducing noise and emissions but to a small degree would adversely affect the amenity of the distant Wetlands and some non-motorised user routes but it would provide new routes.
- 6.581 It is agreed that no public transport schemes could be advanced that would solve the growing problem of congestion in the M4 corridor (ID/073).
- 6.582 The scale of induced traffic is no more than about 1% of the background traffic growth that is forecast to occur. The traffic forecast for the scheme has complied fully with the Department of Transport WebTAG procedure. The arrival of autonomous vehicles would not remove the need for the scheme. The effect of these would be limited by the behaviour of others, thereby denying the network of enhanced capacity. Studies have indicated that improvements in delay of only 7% would occur for a 50% take-up of autonomous vehicles. However, an international study has indicated that it is unlikely that 40% of vehicles on the road network would be autonomous vehicles before 2040. In consequence, the need for the scheme remains unchanged.
- 6.583 It is accepted that the scheme may make Newport a more attractive place to live and that, in turn, could marginally influence property prices although increases are likely to be small. An analysis has indicated that over 70% of direct transport cost savings for businesses and goods vehicles arising from the construction of the scheme would accrue in Wales.
- 6.584 It is recognised that the scheme would occupy about 2% of the Gwent Levels and therefore its adverse impact on the Levels would be contained. It is notable that one seventh of the existing reens are dredged each year, yet they recover to play their role in the matrix across the Levels. Very few lengths of reen would be affected by the scheme and the drainage lagoons would add a new ecological capacity to the area. Translocation of habitats is under review with NRW and all would be monitored after construction.

The Campaign against the Levels motorway (CALM) (6929)

Inspector's Note

CALM, an umbrella organisation opposing the scheme, were not registered as objectors because they did not submit any evidence of objection by the stated statutory deadline, or at all. However, the chair of the Campaign (Dr Catherine Linstrum) wrote an email to all Welsh Assembly Members (AMs) on 17 January 2018, explaining its opposition to the scheme. The one she sent to the Minister was forwarded to me by his office for potential consideration at the Inquiry. It set out, in an attachment, eight main themes of objection.

Attached to that correspondence was a rebuttal to the CALM case drafted by WG. As Mr McCooey and I had both read the package of correspondence I had little option but to accept it all as a material submission to the Inquiry, although subsequently Dr Linstrum confirmed that reference to the Inquiry, whilst not opposed by her, was not her original

intention. The correspondence to AMs and the rebuttal of it is set out at ID/182a Revised. For completeness, I deal with the report by CALM to AMs and the rebuttal of it immediately below, in terms of how the evidence was presented to the Inquiry.

However subsequently, Mr Robert Hepworth, by then, representing CALM sought leave to address the Inquiry on the fresh evidence which had been introduced by WG in respect of the additional traffic which it predicted would use the M4 following the abolition of the Severn Crossing tolls and the publication of the need for greater expenditure on the scheme to offset the severe detrimental effect that the scheme would otherwise have had on the Port of Newport. It became evident at that time that (as it then emerged) a number of members of the CALM organisation had, within the timescales originally set, as individuals, or organisations, given evidence at the Inquiry. Therefore, I granted leave for a team of representatives of CALM to attend the Inquiry and present their evidence in response to the last batch of WG evidence. That was acceptable to CALM and to WG. The exchange of written evidence and the evidence that arose from the late CALM appearance at the Inquiry has been dealt with immediately below.

The written case of the CALM against the scheme

- 6.585 Whilst there is obvious public concern about the congestion on the M4 at Newport an M4 relief road would not solve the problem. Roadbuilding does not solve congestion but merely shifts the problem along the network. Induced traffic quickly erodes any benefits of additional capacity provided whilst the knock-on effects for the rest of the road network more than outweigh any immediate gain. The scheme would exacerbate the problem by concentrating on road transport at the expense of other modes, creating induced traffic and more congestion and moving that congestion to other places, such as Cardiff. The average speed on the M4 is nearly 50 miles an hour but the predictions would only save between 4 and 9 minutes. The assessment of induced traffic has been underestimated and the scheme would make public transport less attractive and disadvantage pedestrians and cyclists. It is unfortunate that the traffic growth used in the modelling could not be explored at the Inquiry because it was deemed to be beyond the Inquiry's remit. Between 17% and 48% of the traffic on the existing M4 Newport is local.
- 6.586 New roads do not necessarily lead to economic development and they do not necessarily help the economy as much as other forms of infrastructure investment. Investing in cycling and walking commonly has a BCR of nearly 3 times that of the scheme and there is no substantial evidence that a program with road connectivity at Newport has significantly imposed downward pressure on economic or employment growth within the region.
- 6.587 For this scheme the government's traffic modelling and cost estimating are flawed which has led to the benefits having been exaggerated, the negative impacts of environmental damage underplayed but the assessment of induced traffic is too low, as shown by a recent report by the Campaign for the Protection of Rural England which indicated a 47% growth of traffic over and above background traffic increases over 20 years on 80 road scheme evaluations. The accident rate on the M4 at Newport is below the UK average and there is no evidence that a new

road would be safer.

6.588 Urban transport is changing but like dual carriageways and multi-storey car parks in city centres infrastructure once built constrains transport choices for generations. If the country is to avoid an ever-increasing car dependency then changes need to be started now. There is a future which embraces very different options for transport and public space but the development of the scheme and the public Inquiry have not taken proper account of them.

6.589 The vast cost of constructing the scheme would limit government expenditure across Wales for many years. It is noted that the cost of £1.2 billion excludes inflation, interest payments, cost overruns which are normal for a project of this nature and the recent deal with ABP which has added £136 million. It is therefore reasonable to assume that the cost would outturn at about £2 billion. That would limit government expenditure across Wales for years to come.

6.590 The M4 saga has always focused on building a new road, with alternatives only being considered after the preferred M4 relief road scheme was already well established. This is not how the planning of major infrastructure schemes should work and alternatives have not been considered evenly or symmetrically. WG has not focused on an integrated package of options to address needs. Such a package of measures which would not cost the earth include:

- the South Wales Metro;
- rail electrification;
- bus lanes, light rail and trams;
- more integrated public transport;
- reduction of single car occupancy by car sharing;
- workplace parking levies;
- rail freight;
- changes to the M4 junctions and M4 traffic management strategies;
- less destructive road alternatives like the Blue Route;
- congestion charging;
- measures to reduce the need for travel, and
- active travel especially for the large proportion of short journeys.

6.591 It is clear that carbon emissions need to be reduced and air quality

improved to avoid catastrophic climate change affects. However, there is a growing gulf between rhetoric and action and it can no longer be claimed that environmental destruction has to be accepted as the unfortunate by-product of economic progress. Construction of this road would move the country in the wrong direction. Air quality in Wales would worsen if the scheme is built because it would increase traffic.

6.592 The scheme would have an unacceptable impact on the environment and cultural heritage. It would be a six-lane motorway that would cover over 10 km of nationally important wetland SSSI's with tarmac and concrete, whilst also polluting and profoundly disrupting the habitats across the remainder of the Gwent Levels. There is a disconnect between environmental policy and the proposed scheme. It would cut across part of the Magor Marsh nature reserve and would slice through four nationally important SSSIs. The proposed mitigation is unproven. Some opponents of the scheme support the alternative Blue Route on the grounds that it would be less environmentally destructive, and were it planned and costed in detail would be more cost-effective. It is unacceptable to drive a motorway through the Gwent Levels landscape of outstanding historical interest. The scheme would not meet the requirements of the 2015 Act which means that the proposal risks being declared unlawful.

WG response

6.593 CALM is an alliance of organisations including Wildlife Trusts Wales, RSPB Cymru, Friends of the Earth Cymru and CPRW as well as individuals and Community Meetings/ Councils and groups. They have been engaged with WG for more than a decade as part of the development of the proposals for the scheme.

6.594 The membership of CALM was already aware of the evidence of Mr Whittaker from a date early in the Inquiry, which defined the quantity of induced traffic across the Usk screen-line as 4.2% on an average day in 2037. New road capacity relieves congestion which, in turn, reduces travel costs which can result in more traffic. Some of the additional traffic will be reassigned from other roads so relieving them, but it is accepted that there may be some induced traffic arising from a large road scheme. However, that induced traffic does not simply fill up the additional capacity which would be provided but rather strikes a new balance between supply and demand thereby making journeys less congested and quicker, safer and more reliable. It follows that induced traffic should not necessarily be interpreted as a negative effect as users would still benefit from easy access and journeys.

6.595 Whilst the national traffic growth factors set by the Department of Transport for use at all Inquiries is beyond the remit of any Inquiry in accordance with the Bushell principle* it is wrong to suggest that evidence submitted opposing WG's traffic modelling could not be opposed or debated. It is a fact that much time was spent at the Inquiry doing that, including it appears by members of CALM.

*Inspector's Note

This defines what the law has determined what is not challengeable at Public Local Inquiries

- 6.596 The scheme would not shift the existing problem on the M4 elsewhere. For example, the traffic forecasts indicate that with the scheme in place the average daily traffic levels along the A48M would be expected to increase by around 2% in 2022 and 5% in 2037. The scheme would not materially affect the current operational problems during the peak hours on weekdays. PIQ/143 proves that the capacity of the existing motorway network to the east and west of the scheme would not be exceeded should the scheme be constructed. The scheme would though remedy the deficit in capacity on the existing M4 around Newport.
- 6.597 The evidence shows that the scheme would be complementary to and progress alongside public transport improvements including the Metro. However, assuming the upper bound assessment of a comprehensive set of public transport improvements takes place that would only achieve a 5.9% reduction in motorway traffic. Details of the analysis are set out in ID73 and in the traffic evidence presented by WG.
- 6.598 In combination with the scheme WG is progressing a Cardiff Capital Region Metro system which would achieve wider benefits for the region other than relieving motorway traffic. However, roads are essential to the proper functioning of all sectors and benefit everyone, not simply those with cars. The scheme would relieve congestion on the motorway and the local road network which is used by public transport. A free-flowing, fit for purpose road network contributes to the smooth running of public transport, encouraging people to use it. The junction strategy would improve accessibility to the existing and planned public transport connections at Severn Tunnel, Glan Llyn and Newport Central.
- 6.599 In 2014 the Department of Transport commissioned a comprehensive review into the issue of transport and its impact on the economy (CD6.1.23). Its general conclusion was that large transport projects positively affect measures of economic performance such as local area employment or GDP. Other studies have confirmed relationships between transport and economic performance. Examples of these are:
- The Spatial Economic Research Centre 2012 study *New Road infrastructure: The Effects on Firms*
 - McQuaid et al 2004 study: *The Importance of Transport in Business Location Decisions*, and
 - the Strauss-Kahn and Vives 2009 work: *Why and where to headquarters move?*
- 6.600 There is also specific evidence linking the performance of the Welsh economy to transport and accessibility. A series of studies which have examined the factors which explains Wales's productivity performance

have identified transport and accessibility as contributory factors. Most recently confirming previous findings and research undertaken by the University of the West of England in 2016: *Understanding productivity variations between England and Wales*, concluded that inaccessibility clearly has major impacts on the level of productivity in Wales, including possible remoteness from major markets, specialist suppliers and services, larger pools of skilled labour or contact with other businesses and information sources.

- 6.601 The initial benefit to cost ratio for the scheme is 1.70 when the cost of mitigation works at Newport Docks and the impact of removing the tolls at the Severn Crossings is taken account of. When wider economic impacts are included in the assessment the adjusted BCR for the scheme would increase to 2.29. These figures represent good value for money.
- 6.602 The evidence shows that some sections of the M4 around Newport have above UK average accident rates whilst other sections have reduced to become below that average, largely as a result of the variable speed limit system. Conservatively, the scheme would save more than 300 accidents over a 60-year period. The modern design of the new motorway and the improvement works to the existing motorway around Newport would allow the layout of the existing road to be modified to improve safety by making alterations to junction layouts which are presently substandard and halving the traffic burden on it.
- 6.603 The Metro would not address the transport related problems associated with the M4 around Newport but it would enhance connectivity across the region, provide easy access to employment across the region and offer development and regeneration benefits on important corridors in and around key stations. It is fully compatible with the scheme. However, a doubling of public transport usage in the Newport area would only achieve a 5-10% reduction in motorway traffic. Details are provided in ID73 and show that public transport improvements would be insufficient to address the problems of the M4. A free-flowing M4 would be hugely beneficial for bus-based public transport and, in a relatively small city like Newport, buses must be a key part of any public transport system, including express buses using the M4. The reliability of buses is critically dependent on a huge number of cars not rat-running through the city. Consequently, a congested M4 destroys any chance of an effective and reliable bus network through the city and in its surroundings. As such, alongside the Metro, the scheme has been identified as a key component of WG's five-year plan for a long-term, integrated and sustainable transport network for Wales.
- 6.604 The Climate Change Committee's June 2007 report to Parliament (ID 100) sets out that a modal shift of 5% is required between 2016 and 2030. The analysis for the M4, and improved public transport, shows a modal shift of up to 6%, taken account of committed Metro schemes. These percentages are not directly comparable because of the difference in the time period and the geographical scope. The orientation of travel near Newport is also different. The scheme focuses on east-west travel

whilst the Parliamentary Committee is concerned with modal-shift in all directions. The predominant impact of the Metro on modal-shift would be in respect of north-south travel movements and not east-west movements. The scheme and the Metro are therefore fully compatible and those schemes, in addition to active travel, would fulfil the Committee's aspirations, possibly exceeding them. WG is committed to modal shift. Whilst a combination of active travel and public transport measures would not adequately address the problems of congestion along the existing M4, the scheme has been designed with a view to enhancing opportunities for active travel and facilitating the use of public transport.

- 6.605 The changes in technology, that in time will influence and change the way we travel, will not address a problem that exists today. That problem will become even more intolerable over time notwithstanding such technology changes in the foreseeable future. The Department of Transport's research indicates that, for the strategic road network, autonomous vehicles would only improve delays by about 7% for a 50% penetration of autonomous vehicles. Any effect on the M4 is therefore likely to be so far into the future that it does not change the need for the scheme.
- 6.606 WG has been clear that it would not use the full borrowing limit on the scheme. It would be funded through a combination of UK Government borrowing and WG capital budgets. It follows that the balance of the current borrowing limit of over £500 million would be available to fund schemes in other parts of Wales from 2018 /19 onwards.
- 6.607 Contrary to the erroneous assertions made, over 100 options and packages were considered and appraised as part of the development of the scheme and this diverse assessment of alternatives involved a wide cross-section of stakeholders including local authorities, Environmental NGOs, Health Boards and group representatives and was cited by Climate Change Wales as an exemplar engagement exercise (PIQ78). That and other factors led Welsh Ministers to conclude that the preferred option for solving the problem on the M4 would be the scheme before the Inquiry.
- 6.608 Following the publication of the Schemes and Orders further alternatives were suggested by objectors. These were analysed and published in the Objectors' Suggested Alternatives Report (CD 4.7.2). A further six alternatives were put forward during the course of the Inquiry giving 28 in total (PIQ 121B). Separate responses to Alternatives 25 and 26 are set out in PIQ 112 and ID103 respectively. Alternative 27, a combination of measures put forward by Mr Waller, has also been developed and presented to the Inquiry. None of the alternative routes or suggestions would offer sufficient advantage in comparison with the published scheme to be adopted.
- 6.609 The assessment of carbon takes into account the transport model results, including induced traffic. The emissions estimated for the construction of the scheme would be a small fraction (about 1%) of the total emissions associated with the South Wales highway network by 2037, including

those of vehicles using it. Having regard to the annual net carbon savings arising from the more efficient highway network, the capital carbon incurred during construction would be repaid by 2072.

- 6.610 The evidence of other objectors referenced by CALM has received specific WG rebuttals.
- 6.611 Air quality would improve in Newport as a result of the scheme. More than 29,266 properties would experience a reduction in pollution concentrations compared with less than 1,595 experiencing an increase. On a wider regional scale air quality is also predicted to improve, despite some local increases in air pollutants along the route of the proposed motorway but, even there, pollutant concentrations would remain well within the relevant air quality objectives and predicted increases in nitrogen dioxide deposition on habitats would be insignificant.
- 6.612 The assessment of the environmental impacts and effects of the scheme are reported in detail in the ES and its Supplements, together with the mitigation measures proposed. These have been an integral part of the development of the scheme following extensive dialogue with representatives of NRW, Cadw and the relevant authorities and stakeholders. The adverse impacts on the landscape, cultural heritage, ecology and nature conservation have been carefully analysed and strategies developed with NRW to minimise the impact that the scheme would have on the SSSIs. A range of mitigation measures have been proposed. The measures to be undertaken would be consistent with the requirements "to take reasonable steps", consistent with a proper exercise of WG's functions to seek to maintain and enhance the features by reason of which the SSSI's are of special interest to maintain and enhance biodiversity, given that the route requiring land within the Gwent Levels is the only reasonable one that would meet the objectives for the scheme and relieve the problems of the M4 around Newport.
- 6.613 The scheme would accord with the sustainable development principle, taking account of the balance between economic, social, cultural and environmental impacts (CD6.3.11).

The Campaign for the Protection of Rural Wales (CPRW) (O144)

The evidence of Mr Peter Ogden

Inspector's Note

This evidence was based on the witness' interpretation of professional advice received from Mr Simon White, a qualified Landscape Architect. As this advice was not provided to the Inquiry it is not known how the witness has interpreted it.

- 6.614 The European Landscape Convention recognises that "All Landscapes Matter" and each defines a location's sense of place and the quality of life it offers for those who live or depend on it. The Convention also states that because a landscape is not designated, that does not devalue its importance locally. This is reflected in the 2015 Act, the Natural

Resources Policy and DMRB Guidance (in IAN 135/10 Wales). This shift recognises landscapes as combinations of value-added resources. It follows that the diversity, significance and benefits these value systems provide must be fully assessed and the consequences of change to them fully accounted for in the decision-making process. The ES does not address these issues fully, although, the legality or adequacy of the ES is not challenged in this regard.

- 6.615 The ES does not include an objective assessment of the area's ecosystems services, their associated values and the scheme's impact on them. This has now been provided.
- 6.616 The proposal would result in significant major long-term detrimental impacts to the landscape character and heritage value of certain Local Landscape Character Areas (LCA) of the Gwent Levels and their surroundings and to designated Gwent Levels Historic Landscape. These impacts were of significant concern to NRW and Cadw.
- 6.617 Whilst the LVIA has been carried out in accordance with the relevant guidance. CPRW is concerned that there are only 3 categories for magnitude of change, which tends to downplay the effects. At the Inquiry, it was accepted that there is no other relevant methodology available. The ES has broadly characterised the landscape effects correctly.
- 6.618 Although not in the highest category of undisturbed areas in Wales, the Gwent Levels are locally important areas of relative tranquillity and darkness. The effect on these qualities needs to be taken into account in assessing the scheme. It is considered that the effects are understated in the ES. The LVIA provides information on the visibility of the scheme once built, together with existing development. It does not take into account the impact of constant traffic noise on the Levels.
- 6.619 There would be an increase in visual clutter as a result of ancillary structures associated with the Scheme. Its impact would be more unacceptable than the ES suggests.

Written representations of Mr Victor Warren, Vice Chairman of CPRW¹⁵

- 6.620 The route options and the contribution of the South Wales Metro to reducing traffic were not properly considered.
- 6.621 Traffic is not increasing on the M4 and car use has peaked so there is no need for the Scheme. Congestion on the M4 is no worse than any other urban peripheral motorway in the UK. The M4 is a safe road according to Road Safety Foundation risk rating publications.
- 6.622 The Blue Route would provide resilience for the network at a third of the

¹⁵ Chair of Newport and Valleys Branch CPRW

cost.

- 6.623 The business case for the scheme is poor. The budget for all of Wales for years to come would be spent on one project in south Wales.
- 6.624 It is a travesty that the scheme ignores protected landscapes.
- 6.625 CPRW supports the cases of GWT on environmental/ecological impacts, FoE on emissions/pollution from the scheme, and the Campaign for Better Transport view that the scheme ignores the potential of rail freight and improved public transport to meet transport needs.

WG Response to CPRW

- 6.626 Chapter 9 of the ES describes Year 15 effects which are described as Large Adverse for Wentlooge Levels and Caldicot Levels and Moderate Adverse for Michaelston-y-Fedw and Magor and Undy. The proposed mitigation is set out in the evidence of Nicholas Rowson. The evidence of John Davies goes further to consider the policy implications and balance between the impact on the landscape and natural environment taking into account other factors. The evidence of Matthew Jones summarises the key impacts of the scheme, balanced against the assessed benefits.
- 6.627 The LVIA has been undertaken in accordance with the relevant guidance in DMRB (as set out above) and using LANDMAP, which is the recognised all-Wales methodology for landscape assessment.
- 6.628 There is currently no methodology for measuring the impact of development on ecosystems services. Until such time as a methodology has been developed, recognised current assessment methods must be used. Current guidance on the assessment of landscape and visual impacts is set out in DMRB, IAN 135/10(W) and GLVIA 3. Both the scope and outcomes of the assessment are agreed by those statutory bodies that have commented. The environmental impact of the scheme has been assessed in the ES. The advice in GLVIA 3 is that there should be more emphasis on the narrative text describing the landscape and visual effects rather than the simplistic tables and matrices. The ES uses five categories: *No Change, Negligible, Minor, Moderate and Major*. The LVIA uses a 5-point scale and makes clear which categories are considered significant.
- 6.629 The majority of the study area (and all of the area through which the proposed scheme would be located) appears to be within Zone B and "Built up areas", not Zone C on both the 1997 Tranquil Areas Map (Map 16 of CCW report) and 2009 Tranquil Areas Map (Map 17 of CCW report). Nicholas Rowson (WG1.8.1) clarifies that Table 15 at Page 53 of the CCW report describes Zone B as "Countryside subject to significant traffic intrusion and other equivalent disturbance". The information on the maps is very general and so the ES used the more accurate LANDMAP information and site knowledge. The impact on protected landscapes has been assessed.

6.630 The effects on tranquillity have been included in the ES, as well as the visual effects of lighting, signage and gantries, etc. The impact of noise has also been fully assessed. The Gwent Levels are already characterised by industrial, agricultural and road traffic noise.

Inspector's Note

The additional points made by Mr Warren related to the choice of route, resilience, traffic growth, funding, SW Metro, economics/business case, accidents and congestion are addressed elsewhere in this report and are not repeated here.

Additional Evidence of CPRW

Inspector's Note

Due to staff shortages at CPRW, Mr Hepworth, who is a member of the National Executive, has prepared the further evidence on behalf of CPRW, responding to WG new evidence on Newport Docks and the abolition of the tolls. He says that the response is limited by shortage of resources and time. He is a retired senior officer of the UN Environmental Programme and former Head of Global Wildlife in the UK Dept. of the Environment. He has also worked for the Dept. of Transport. The evidence was written and is reported here for convenience and continuity.

6.631 WG admits that the historic landscape and sense of place (tranquillity) would clearly be affected by the scheme. Nothing is being offered to mitigate these landscape effects. The character of the Gwent Levels is accurately captured in Table 6 of the report. However, no serious mitigation is offered for the cultural and recreational value for people. The claimed benefits of the scheme are a desperate attempt to mask the damage being done. WG admits that the parts of the Historic Landscape severed by the scheme would be open to development pressure. This is portrayed as reasonable when the alternative would be to actively protect these remaining areas by designating them as a National Park or equivalent.

6.632 The scheme would have significant noise effects on the Gwent Levels, exacerbated by the longer than normal working hours proposed for the construction period, without any consultation with residents.

6.633 The excessive costs to the public purse of the works proposed in Newport Docks (to compensate private companies) are queried. The new evidence contrasts with earlier WG evidence that the effect on dock operations would not be very significant. It appears that the costs exceed what is necessary to remedy the effect of the scheme. Mr Hepworth questions whether risk and optimism bias costs, maintenance costs and the rising costs of challenging engineering work have been allowed for in these figures. The reduction of the costs by £17.5m is not explained satisfactorily by WG. The safety of the proposed Usk Bridge in terms of collisions and fire risk is called into question by the use of terms such as broadly acceptable risk.

6.634 The assumptions made in the traffic model are questioned. The ban on diesel/petrol cars will reduce the demand for travel and increase costs contrary to what is assumed. The predicted increase in incomes has not

continued with recent statistics showing that incomes in 2017 are no higher than they were in 2006. The predicted traffic figures show an increase in journey times on the existing M4 in 2022.¹⁶ This does not appear to justify spending £1.4 billion. These anomalies need to be explained. Finally, the model takes no account of two major park and ride proposals on either side of Newport, which will divert a significant amount of traffic onto rail and away from the scheme. The costs of the Scheme are likely to soar, as has been proven in the case of the South Wales to London rail electrification project. The no tolls evidence claims a benefit to the scheme as a result, but no allowance for the costs in tolls lost has been made.

6.635 The route of the scheme would destroy the only nesting site for the Common Crane in Wales. The success of the proposed mitigation of alternative sites is not guaranteed. The precautionary principle should be applied, which would surely require WG not to route the proposed motorway through the nest site. The precautionary principle is enshrined in several EU treaties.

6.636 The destruction of the nest site would also be a very clear breach of two important international treaties on conservation of migratory species to which the UK is a signatory. This is the view of Mr Hepworth, an expert on implementation of these treaties in the UK and UN. WG approach would be open to legal challenge. The response of WG claims that mitigation proposals would address the issues raised. Mitigation is not enough to address the illegality of the point raised. The points made in relation to the effect on the Crane nesting site stand. CPRW maintains its objection made in earlier submissions and supports the view of NRW in opposition to the scheme.

WG response to the additional evidence

6.637 The Eco-system Services report accepts that there would be adverse effects upon the cultural landscape, for which it is not possible to mitigate. The report recognises that certain elements, such as food production and historic landscape would experience a net loss, but that overall, and over a very long period, the adverse effects on the ecosystem services would be more than offset by the mitigation.

6.638 WG is not advocating development along the new motorway in the back-fen area. WG is not suggesting that further development would be reasonable, especially given the importance of the SSSI designations and the need to protect these areas. Any development proposals in this area would have to be given proper consideration through the planning process. It is a fallacy to suggest that the scheme would open up the Gwent Levels to endless degradation and exploitation.

6.639 Noise from the motorway would fall off rapidly beyond several hundred

¹⁶ WG1.2.7 Table 6

metres. There would be noise reductions for the more densely populated areas along the existing M4 with increases for the fewer properties close to the route of the scheme. The main noise evidence for WG concluded that the Levels are not particularly tranquil, in any event. Normal construction hours would be agreed with the relevant local authorities and necessary out of hours and emergency works would be agreed with the Councils and local residents advised.

- 6.640 The issues raised regarding the ban on petrol vehicles, household incomes, etc. are national economic issues to be taken account of in WebTAG forecasts and the range of scenarios therein. The slight increases in journey times on the existing M4 are explained by traffic safety measures and the lack of a free flow link east-bound. The journey time savings alone would justify the scheme. The predicted traffic and congestion increase on the existing M4 would lead to significant problems even outside the peak hours if nothing is done.
- 6.641 Because of their special status the risk of overspend for the proposed package of mitigation measures within the docks lies with WG, unlike the rest of the scheme where a proportion of risk lies with the contractor. WG have agreed to cover the costs of maintenance of the swing-bridge costs over 80 years of about £2.6 million. Maintenance costs are not included in the capital costs of the scheme but the economic appraisal of it already includes £220 million of costs to cover the maintenance element. Because of the effect of discounting the inclusion of the additional £2.6 million would not affect the BCR when expressed at two decimal places.
- 6.642 The mitigation measures which would be provided for ABP have been carefully tailored to ensure that they address the serious detriment that the port would otherwise suffer as a result of the scheme being constructed through it and goes no further than that package which would be necessary to address that serious detriment. The package of measures is compensatory in nature, based on the principle of equivalence and would not provide the sort of economic advantage which is capable of giving rise to state aid. The provision of a swing bridge rather than a series of cranes was an economic solution to the obvious severance which would be caused by the scheme.
- 6.643 CPRW is incorrect in claiming that the scheme would increase the risk to public safety and that other alternatives would not require such a trade-off. The design of the scheme results in broadly acceptable risk which has been accepted by ABP and it is anticipated would be accepted by the Port Security Authority*. Some of the alternatives being championed by CPRW would carry an inherent user safety risk. A risk assessment carried out for the scheme in accordance with the DMRB gives an annual probability of death of users and other parties because of the works in the docks at about 1 in 5 million. The design of the scheme would ensure that the storage of timber beneath the viaduct would be safe.

*Inspector's Note

Later confirmed as satisfactory.

- 6.644 Following the changes to the docks WG has reduced its risk allowance by £12.5 million and a further £10.8 million reduction has been applied to the optimism bias allowance. This is offset by the additional optimism bias allowance specifically related to the bridge protection works. The net result of that would be a reduction in the risk and optimism bias allowance of £17.5 million. These figures reflect the more advanced stage of design of the works within the docks than hitherto and is entirely logical.
- 6.645 The UK Government's decision to abolish tolls for the Severn Crossings is not a matter to be considered at the Inquiry other than as a measure of the impact of the removal of the tolls in comparison with the do minimum scenario.
- 6.646 The criticism by CPRW of the forecast traffic demand is wrong because the Department for Transport has taken account of government policies and average incomes in issuing WebTAG forecasts of growth in travel demand and in values of time. They are also fundamentally wrong in their assertion that traffic has peaked. The evidence to the contrary is compelling, as set out in the evidence in chief. These forecasts provide a consistent basis for project appraisal across the UK. CPRW are also incorrect in expressing the view that the benefits of the scheme are extremely marginal. They have missed the point that the combination of safety measures that are proposed to be introduced on the existing M4 when the scheme is built, which would include lower speed limits for some sections and a reduction in capacity, and the absence of a free flow link in the eastbound direction between the existing M4 and the new M4. These negative effects have been modelled in the do something runs of the traffic model.
- 6.647 CPRW are also concerned that no allowance has been made for the effects of two park-and-ride stations proposed as part of the South Wales Metro at Llanwern and St Mellons. The Llanwern park-and-ride scheme has been included in the modelling work and that would lead to a reduction in the M4 PM Peak hour flows of about 2%. The St Mellons park-and-ride facility will primarily attract journeys from east of Cardiff to Cardiff City Centre. Such journeys would continue to use the car as far as St Mellons so the use of the park-and-ride would offer no relief to the M4 around Newport. In any event the impact of that park-and-ride facility would be minimal on the congestion on the M4.
- 6.648 The precautionary principle has been applied by WG in the mitigation proposals for the Common Crane. Two suitable nest sites would be provided in areas with appropriate foraging and nesting habitat. There is no reason to believe that the use of tried and tested habitat creation methods would not be successful. In any event, the obligation to provide alternative nesting opportunities would be met and exceeded. The proposed measures are set out in the Register of Environmental Commitments. There have been extensive and on-going discussions with the RSPB and NRW in relation to the mitigation proposals. The relatively straightforward measures proposed would ensure that the duties under

the Environment (Wales) Act 2016 and the International Treaties referred to by Mr Hepworth can be met (ID 245).

Woodland Trust (WT) (O271)

6.649 The WT had objected to the scheme on the basis of the loss of Ancient Woodland (AW). Planning Policy Wales states that "Ancient and semi-natural woodlands are irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage".

6.650 The main points of the objection are:

- the direct loss of 1.04 ha of AW at Berryhill Farm, with further small (undefined) losses of ancient woodland at Pwll Diwaelod and Roggiett Brake;
- indirect impacts resulting in damage to AW at Berryhill Farm, Pwll Diwaelod, Pye Corner and Roggiett Brake;
- inappropriate proposals for the translocation of AW habitat, incorrectly described as mitigation for the loss of AW;
- loss of compensation woodland planted as part of the original construction of the M4, and
- insufficient compensation proposed for the damage and loss of AW.

Content of Statement of Common Ground – WG and WT

6.651 AW sites are varied and unique habitats providing for many of the UK's most important and threatened species. Not every AW supports the whole range of species. There would be no indirect effects on AW at Berryhill Farm as the whole AW would be removed.

6.652 The total loss of AW is 1.1 ha, comprising 1.04 ha at Berryhill Farm and 0.06 ha at Pwll Diwaelod north of the existing M4. There would be no direct loss of AW at Pye Corner, but there is likely to be an indirect effect on that woodland. There would be no felling of any AW at Roggiett Brake. The haul road to Ifton Quarry (as used for construction of the second Severn crossing) would be re-instated. This would require pruning and lopping and re-surfacing of the road. There would likely to be an indirect effect on that woodland as a result of use of the haul road.

WG response

6.653 The small size and degraded nature of the AW at Berryhill Farm justifies its classification as of important at the County level. It is agreed that the loss of complex eco-systems of AW cannot be replaced. But new planting can provide woodland habitat, which will support wildlife, in time. It is agreed that the long-term effects of the scheme on woodland would be a significant impact.

6.654 The WT refer to the need for a 1:30 replacement ratio for AW. WG is not aware of any instance where this has actually been provided. The ratio for the HS2 project is the highest known at around 9:1. The total loss of woodland across the Scheme would be almost 50 ha, whilst the new planting proposed would be some 104 ha. This is a ratio of 2.1 to 1. Or looked at another way, assuming a ratio of 30 to 1 is provided for AW, this would leave 70 ha at a ratio of 1.4 to 1 for replacement planting for the remainder of the woodland lost as part of the scheme.

6.655 Planning Policy Wales does provide protection for AW. But this is not to be slavishly followed and there will be occasions where the loss of AW would be justified. NRW has raised no objection to the loss of AW in this case. The loss is justified by the merits of the scheme.

Mr T N D Anderson of Pace Transportation Ltd Wales (6905)

6.656 Mr Anderson is a Director of a Transportation Consultancy who considers that:

- the proposed M4 is an unimaginative traffic inducing Government response to a minor issue which ignores traffic congestion in Cardiff
- there are better ways of spending public money from a traffic and environmental perspective, as shown by advanced countries in Europe, and
- major roadbuilding should end, with cycling, walking, traffic management and public transport schemes advanced instead.

6.657 Mr Anderson is concerned that there would be a huge amount of induced traffic generated but no account has been taken of it and the induced traffic could cause the new and old stretches of M4 to become congested in just over a year after opening*. He believes that the traffic growth forecasts are unreliable and that car use in the UK has peaked and the demonstrated continuous five years of traffic growth on the M4 is too short a period to be reliable. He fears that with the promotion of the scheme, Mid and North Wales would be given a lower priority for funding (ID/027, ID/028).

6.658 All road base modes create carbon and pollution from combustion and the tyre – road interface, as well as run-off from the carriageway. Major health hazards occur as a consequence. A pollution plume would be created by the scheme which would impact on the health of Newport residents, particularly those with respiratory illnesses and children.

6.659 Should the M4 be constructed the balance of benefits would accrue to England**, whilst increased traffic in Cardiff would be a regional disadvantage.

6.660 Open space and wildlife habitats near Newport would be lost and the bridge over the River Usk would be visually intrusive for residents.

- 6.661 Use of the proposed M4 would have a negative impact on public transport in the Cardiff–Bristol corridor and would undermine bus and rail services. The scheme would be a threat to a futuristic low-cost tram system for Cardiff and would contribute to sub-optimisation of transport networks in South Wales. The scheme would confront the principles of the 2015 Act and there are substantial doubts about the positive economic impact that the scheme would have.
- 6.662 Further improvements to the existing M4 and the Brynglas Tunnels should be undertaken as an alternative to the construction of the proposed M4 and there has been no consideration of alternatives to the proposed black route.

Inspector's note

/ Under examination, Mr Anderson accepted that, on both points, he had been fed erroneous figures by Friends of the Earth Cymru, which he had not checked and conceded that, on reflection, the economic benefits that would arise from the scheme could occur to the South Wales or to Bristol areas.*

WG response

- 6.663 The case for the scheme is set out in the evidence in chief of WG which shows that the scheme would have a positive economic return, deal adequately with the projected traffic forecasts in the design year, reduce accidents and, overall, substantially reduce air and noise pollution on the residents of Newport. Induced traffic has been taken account of and there would only be a minor increase of about 2% on traffic volumes approaching Cardiff.
- 6.664 Extensive measures have been proposed to deal with the loss of open space and wildlife habitats, and the visual appearance of the River Usk Bridge, far from being intrusive, has been praised by the Design Commission for Wales. The scheme would be carbon neutral.
- 6.665 The latest national road traffic forecasts have been used to predict design year flows for the scheme. These recognise that there has been a reduction in the number of trips in recent years with the two most common journey purposes (shopping and commuting) exhibiting a statistically significant downward trend. However, motorway growth has continued to rise. The transport model has been developed in such a way that it can capture a range of behavioural responses which include reassignment, the switching of trips between highways and public transport and changes in trip destination. The future year forecasts therefore take into account induced traffic effects. However, there would not be a return to previously congested conditions within a year or for a very substantial period thereafter. The proposed scheme would almost double the carrying capacity of the existing road and takes account of all planned public transport improvements in the South Wales area though the results show that the combined effect of these public transport schemes would be to reduce the M4 traffic by a maximum of 6%.

- 6.666 The scheme would be in accordance with the objectives set out in the 2015 Act by improving prosperity, tackling poverty and reducing inequality.
- 6.667 It is not for the Inquiry to adjudicate on the relative merits of different forms of public expenditure.
- 6.668 The M4 has already been substantially improved and work is currently ongoing at the Brynglas Tunnels, but the problem of congestion and safety remains.
- 6.669 The scheme would incorporate meaningful facilities for cycling and walking. Public transport improvements, in total, would remove an insignificant amount of traffic from the M4 (ID/073).
- 6.670 An analysis has shown that over 70% of direct transport cost savings for business and goods vehicles would accrue in Wales. For commuters and other non-work car travel the proportion of benefits accruing in Wales is about 80%, whilst residents and businesses in Bristol and Gloucestershire who use the M4 would also benefit. In 2014 the Department for Transport commissioned a review of the linkages between transport and the economy. Substantial evidence that transport improvements lead to improved economic outcomes in the local area were confirmed.

Roadchef Ltd (O26)

The evidence of Mr Turl and Dr McKay

- 6.671 Roadchef is the owner of MSA at Magor. It welcomes the incorporation of the proposed eastbound slip at Magor but opposes the scheme because it would lack a similar westbound on-slip road. Roadchef have promoted Alternative 11, incorporating such a slip road but withdrew all its other alternatives
- 6.672 The basis of the objection is that without the westbound on-slip road the existing MSA would be perceived as being less attractive to drivers using the M4, thereby reducing the amount of custom. That would have a negative economic effect on the business and create a lack of inducement to drivers to stop, rest and recover from fatigue. Reduced use of this particular service area would lead to sleep-related accidents occurring on the motorway. In particular, those exiting the MSA wishing to travel west would need to travel east from J23a to J23 before turning westbound on the proposed motorway. That would be a significant detour. An alternative route would be via the existing M4, which would be downgraded in status and would be less attractive to drivers because of its non-motorway status and mix of traffic (ID/116).
- 6.673 Customer research indicated that use of the MSA would reduce by some 80%. This is based on a research project which indicated that about 81% of the current users of Magor services cited ease of access as a key feature which they liked about the site. A very large proportion of those interviewed in the survey indicated that they would be less likely to visit

the service area if access was made more complex.

- 6.674 WG does not have a published policy on the spacing, configuration, accessibility or composition of MSAs in Wales but guidance should be taken from DfT Circular 02/2013 which is applied in England. It should also be recognised that Services with direct access from the motorway attract about 30% more custom than those with a more circuitous access facility.
- 6.675 The potential for sleep related accidents has been recognised in the Road Safety Audit Report of May 2017 (ID091) and is founded on the fact that there would be no services with direct access from the motorway for 48 miles between junction 30 of the M4 at Cardiff Gate and the Leigh Delamere Services, west of junction 17. That has been ignored, even though the standards (DfT Circular 02/2013) advise a maximum distance of 28 miles between service areas. Without a westbound on-slip, drivers would have to negotiate 7 roundabouts and the Glan Llyn/M4 junction.
- 6.676 WG's own safety audits drew attention to the lack of a westbound on-slip road.
- 6.677 The cost of the dedicated westbound on-slip road , of about £14.5m, would be a small percentage of the cost of the scheme and would be offset by the benefits it would accrue thereby retaining the overall positive cost benefit factor for the scheme at about 1.65. It should also be recognised that the absence of the westbound on-slip road would reduce the commercial value of the land and this should be taken account of when set against the capital cost of providing the slip road (ID/117).

WG response

- 6.678 It is accepted that a more indirect access arrangement would deter a proportion of customers from visiting the service area, thereby reducing turnover and profit although the business would remain viable. The impact would be a lot less severe than projected by Roadchef, principally because the existing M4 would provide efficient egress to the west, it's traffic flows would be halved as a result of the construction of the new motorway, thereby making driving easier and it would provide expeditious passage for vehicles wishing to travel westbound. Using the existing M4 ought not to be counterintuitive for drivers and few, if any, would choose to double back from J23A to J23 in progressing their onward journeys to the west.
- 6.679 The details of all the amendments to the status of J23A and the existing slip roads are set out in PIQ 123.
- 6.680 It is accepted that the additional westbound on-slip road would maintain a healthy cost benefit return for the scheme as a whole but the additional capital cost of about £14.5m could not be justified since the proposals contained in the draft Schemes and Orders would be perfectly adequate, safe and reasonable without a westbound on-slip road and would satisfy the statutory tests.

6.681 It is accepted that the construction of a westbound on-slip road is a practicable proposition and whilst it would have some environmental disadvantages these would be relatively minor. Local traffic flows would be influenced by the incorporation of a slip road which would draw more traffic onto the B4245 through Magor and between Undy and Magor but correspondingly reduce traffic on that road further to the east (PIQ/115).

Rontec Ltd (O292)

6.682 The case for Rontec who operate and own the fuel station within the Magor MSA is identical to that of Roadchef who operate the MSA. The company confirmed that it would rely on the Roadchef objection as presented to the Inquiry, together with its own written submission.

WGs response

6.683 WG relies on its response to Roadchef in answer to the objection of Rontec.

Mrs Ann Picton (O203)

6.684 Mrs Picton is a long-standing resident of St Brides Wentlooge and a Community Councillor for Peterstone and St Brides.

6.685 The Gwent Levels is an ancient, beautiful, iconic landscape of international significance and exceptional historic and unique conservation value, with nationally important wildlife habitats contained within it. It is the largest surviving area of grazing marshes with drainage ditch and reed systems in Great Britain. It is relatively close to the urban areas of Chepstow, Newport and Cardiff, a location which increases its importance in terms of green space and tranquillity for those living nearby.

6.686 The Levels currently give opportunity for long walks in solitude between dense hedges and tall reed beds, in a landscape that has remained largely unchanged for 600 years. Housing and industrial development have already damaged the historic part of the Levels, causing great losses of land, and now the proposed M4 would represent the greatest threat of all. The area has been registered as a Landscape of Outstanding Historic Interest, whilst its biodiversity has international significance. Most of the area is heavily protected but that does not guarantee protection against changes in land management or development. How much of what remains to be handed on to future generations to enjoy, farm and marvel at depends on the extent to which the damage done by the proposed M4 would be limited. Two thirds of the proposed road would traverse the SSSI's, amounting to the destruction of the unique villages, lifestyles, peace and quiet. Once removed that could never be recovered.

6.687 An alternative comprising a new tunnel and improved sections of motorway should be constructed instead*.

Inspector's Note

*This is alternative 25 and is presented in Section 7 of the report.

WG's response

- 6.688 The effect of building and operating the scheme on the environment is set out in the ES and its Supplements. These documents acknowledge the importance of the Gwent Levels and identify the magnitude and significance of the effects the scheme would have on a wide range of environmental features and assets. It is accepted that there would be a permanent large adverse effect resulting from the impact the scheme would have on the Landscape of Outstanding Historic Interest (CD2.3.2).
- 6.689 The scheme would be essential to the well-being of the people of Wales. It would be the environmental, economic and socially sustainable long-term solution to the serious problems experienced on the M4 around Newport. Alongside the proposals for the South Wales Metro it would form a vital part of the vision for an efficient and integrated transport network for Wales.
- 6.690 Of the 125ha of land within the Gwent Levels SSSI's affected by the scheme some 86ha would be grazing marsh. The measures to mitigate the effects that the scheme would have on this land are set out in the SSSI Mitigation Strategy and the Reen Mitigation Strategy. The ecological surveys carried out to inform the ES have been extensive and have considered those species considered to be of most importance both in terms of their conservation status and susceptibility to adverse impacts. Measures taken to offset these impacts have been reasonable and extensive.

Mrs Louise Davies (O6911)

- 6.691 The expensive scheme should not be built to enable the funding of other projects to proceed, for example flood defences. If constructed the scheme would cause a significant loss of fragile habitat, wildlife and tranquil green space. The proposed road could be dangerous and the proposal takes no account of the effect on mental health of residents. Chemical pollutants from road schemes could also be problematic as is evidenced by the analysis of the contamination effects related to the M25 and A34 Newbury bypass. The effects of cadmium and metals on human growth and development are a serious matter. The proposed mitigation and translocation for colonies of wildlife should be treated with caution, since there are many examples of them failing.

WG response

- 6.692 The economic case for the scheme is sound and is based on the most likely traffic growth forecast. It would deliver a BCR of about 1.62 but if wider indirect economic benefits were considered that would increase to 2.23. The reallocation of government funding from one project to another is not a matter for any public local Inquiry. The proposed road, built to modern standards would be safer than the current situation with approximately half the traffic transferring to the modern road layout and

away from the substandard existing road. A Health and Equality Impact Assessment has been undertaken and shows that the scheme would cause quantifiable but minor beneficial health outcomes largely due to a net reduction in residential noise and exposure to air pollution. The study and analysis undertaken on attenuation ponds serving the M25 and Newbury bypass indicated a substantial removal of contaminants. The drainage system proposed for the M4 would be superior to both with extensive grass lined channels filtering the water run-off before it enters the lagoon system. WG has an agreement with the NRW that a non-chloride based de-icing treatment would not be used between 1 March and 30 September each year. The system would be subjected to regular monitoring to ensure that water standards are met.

Ms Ellen Law (O308)

6.693 Ms Law, who supports greener transport options and the alternative Blue Route, is opposed to the scheme because of the cost, pollution, its failure to comply with the 2015 Act and the impact it would have on the Gwent Levels and wildlife by effectively:

- removing 125 ha of SSSI habitat;
- damaging 9 SINCs;
- removing a section of the Magor Marsh Nature Reserve, and
- removing long lengths of reed and field ditch.

WG's response

6.694 The ES recognises the importance of the Gwent Levels and its wildlife. The project would be funded through a combination of UK Government borrowing and WG transport capital budgets. It would offer good value for money and is necessary to deal with the current unsatisfactory congestion on the M4, on which traffic flows are growing year on year. The scheme would result in a reduction in user-carbon because it would be shorter than the existing M4, would relieve pollution caused by the current congestion and facilitate a significant reduction in disruptive incidents which currently occur (CD1.13.1).

6.695 The inadequacies of the proposed Blue Route have been exposed in an Appraisal of Objectors' Alternatives. Such a scheme would not address the problems that currently exist or achieve the objectives of the M4 project.

6.696 WG is subject to the duties relating to sustainable development set out in the 2015 Act. The scheme would accord with sustainable development principles, as set out in the Sustainable Development Report (WG1.19.1, CD2.3.11).

Dr Diana Callaghan (O6919)

6.697 Dr Callaghan's objection to the scheme was initially set out as part of the Marshfield Community Council objection (O6902). It concerned the issue of water which would drain from the elevated section of the scheme into the reen system which primarily runs alongside Ty Mawr Lane and which has been known to over-top onto the highway adjacent to, and in front of Dr Callaghan's property. An increase in water volume, perhaps in terms of thousands of gallons, would pose a threat to the 30 or 40 homes in the lower end of the village, particularly when high tides and heavy rain coincide, because this is when run-off from the motorway would be at its maximum. Whilst an adjacent length of reen is dredged and the banks cut by NRW twice yearly, the "main river" Drenwydd Reen is not dredged. This results in silting up, overgrown banks and a shortage of capacity. In flood storage terms it would be preferable for the proposed drainage lagoons to be connected to another watercourse, for example the Hawse Reen, that runs through countryside away from property and direct to the coast.

WG response

6.698 Water from the proposed motorway would drain into an attenuation lagoon system which would severely limit the outfall volume. The lagoons have been designed to store the excess water arising from the carriageway whilst limiting the volume of flow which would pass into the reedbeds that would be located just downstream of the lagoons. The design has taken account of all rainfall events up to and including the 1 in 100-year storm, with an additional allowance for climate change. That design would restrict the amount of water entering the reen network to that of greenfield run-off rates and a significant number of checks have been made to ensure that a range of storm durations would not cause flooding downstream of the lagoon system.

6.699 The highway run-off from part of the existing M4 and A48M currently discharges unchecked into the same reen system which would take the proposed Castleton interchange run-off. The proposed drainage system would therefore be beneficial in terms of reducing volumes relative to the current situation and could not exacerbate flooding outside Dr Callaghan's home.

6.700 There are no convenient reens located away from property which could accept motorway run-off and, as the network is interconnected, discharge to a reen other than the Drenwydd Reen would not reduce the volume of water near Dr Callaghan's property (WG1.17.1).

Written Statements to the Inquiry from Statutory Objectors

Marshfield Community Council (O6902)

6.701 The Council objects to the disruptive and potentially destructive scheme on grounds of its excessive cost, potential to damage the Gwent Levels and wildlife, noise, air pollution, visual impact and the effect it would have on the well-being of residents. The scheme could deflate property

prices, cause an increase in traffic on the A48 and increase danger.

6.702 Individual responses canvassed from the community included the following points:

- the community would be disrupted for years during the construction process, yet would have no direct benefit from the scheme because there would be no local accesses to the scheme
- ancient and other woodland would be destroyed and there would be serious detriment to the birds and mammals that live on the Levels
- traffic trying to access the scheme would cause congestion within the community
- water draining from the elevated local section of the scheme would enter the reen running alongside local roads and potentially cause flooding
- the justification for the scheme has been based on unreliable evidence, and integrated transport, including the Metro, which reduces the use of the internal combustion engine, should be adopted instead, and
- there are better and cheaper options available, including the Blue Route or boring or cutting into the hill above the Brynglas Tunnels to engineer a wider motorway on its existing line*.

*Inspectors Note

This is alternative 19 dealt with at Section 7 of the report

WG response

6.703 It is noted that only half the residents surveyed in Marshfield oppose the scheme.

6.704 All alternatives submitted by the specific deadline were analysed, discussed with the promoters, and widely published throughout the region. They have been presented to the Public Inquiry in some detail. The Blue Route was one of those and received substantial analysis, reporting and discussion but it would not address the problems or achieve the objectives of the scheme. In contrast the scheme would offer good value for money with the benefits to cost ratio of over 2 to 1. The traffic analysis and predictions and scheme costing have all been vigorously undertaken.

6.705 WG has had regard to the proposed South Wales Metro and the scheme would be complementary to and compatible with it, but not a rival of it for funding. All local public transport schemes, including rail electrification, Newport rapid-transit, the Metro and improvements to the

Valley lines were included in the traffic modelling exercise which revealed that the maximum removal of traffic that all these projects acting together would take from the M4 would be about 6%.

- 6.706 The scheme would be funded through a combination of UK Government borrowing and WG transport capital budgets. WG has determined that it would not be allocating the full amount of borrowing capacity to the scheme, and the balance of the current borrowing limit, over £500 million, would be available to fund schemes in other parts of Wales from 2018/19 onwards.
- 6.707 The scheme would require woodland to be removed but the replacement areas would significantly increase the area of woodland in due course.
- 6.708 An alternative solution which effectively would drive another tunnel through the hill at Brynglas has been considered, engineered, costed and assessed as part of the package of alternatives. This has been presented to the Inquiry as Alternative 19 which includes online widening.
- 6.709 The reclassification of the existing M4 would allow safety modifications to take place by making alterations to junction layouts and these proposals would be compatible with a dual two-lane all-purpose trunk road on which about half the current level of traffic would run. It would be a perfectly adequate road to cater for relief should there be an incident in the area.
- 6.710 Access to Marshfield from the scheme would be available via Tredegar Park and the A48 SDR, using the Docks Link Road and junction. The existing M4 would remain available from Tredegar Park and Marshfield residents would benefit from the reduced traffic volumes on that road. That would enable increased speeds and better journey time reliability, particularly at peak times, to take place. Traffic forecasts, which have been thoroughly tested, indicate a reduction of traffic on the A48 through Marshfield, ranging from 2% in 2022 to 6% in 2037 compared to a situation which would arise should the scheme not be built. That should reduce collisions on the A48 in the Marshfield area. Similar reductions are predicted between St Mellons and the A48 at J29A. By removing traffic from the substandard M4, and providing a modern three-lane motorway, the number of accidents and incidents in that area would be bound to decrease.
- 6.711 In order to reduce the impact that the construction would have on Marshfield, material delivery routes would avoid the use of residential streets and all major earthworks traffic would be restricted to the proposed on-site haul road. There would be the need for occasional overnight, all weekend road closures but noise and dust would be controlled by regular damping down of the access roads and monitoring in association with the Newport City Council's Environmental Health Officer. Out of hours lighting would be positioned to direct lighting away from nearby residential areas.

- 6.712 The effects of building and operating the scheme on the environment are set out comprehensively in the ES and its Supplements. These clearly identify the magnitude and significance of effects on a wide range of environmental features and assets. The scheme would affect less than 2% of the area of the Gwent Levels SSSI's. Extensive environmental surveys have been undertaken and extensive mitigation works would be incorporated into the scheme. It is recognised that the scheme would have an adverse effect, assessed as large adverse impact on the landscape character area associated with the Gwent Levels, east and west of the River Usk (PIQ/114).
- 6.713 It is not accepted that Marshfield residents' health would suffer as a result of the scheme. Carbon dioxide is not an air pollutant, it is a greenhouse gas and the scheme would reduce emissions because of its efficiency in reducing standing traffic on the existing M4. There would be no discernible change in noise levels in the Marshfield area.
- 6.714 Flooding and pollution would be constrained by the creation of water treatment areas which would operate to release water in a controlled fashion at rates similar to today. No local flooding would be caused by the construction of the scheme.

Written Objections from Statutory Undertakers

- 6.715 Full details of the written objections from Statutory Undertakers and WG's responses to them are set out in the dossier which is referenced PIQ/139.

Inspector's Note

At the Inquiry a round table discussion covered the effects that the scheme would have on all statutory undertaker's plant and the remedial actions proposed. At the end of the Inquiry there were no outstanding objections from any of the statutory undertakers whose plant or operations would be affected by the scheme. However, their initial concerns are briefly listed immediately below for completeness and reference.

Network Rail (O25)

- 6.716 As operational land would be affected by the scheme, under Section 16 and Schedule 3 Part 11 of the Acquisition of Land Act 1981 the Orders should not be made until matters have been resolved. If resolved the scheme would be supported*.

* Inspector's Note

Network Rail subsequently wrote to the Inquiry in support of the scheme.

WG response

- 6.717 The scheme would affect Network Rail at:

- Duffryn – a railway underbridge over the South Wales mainline
- River Usk Viaduct – spanning over the Uskmouth Railway, and

- Llandevenny – a railway under bridge over the South Wales mainline.

6.718 The scheme design would take into account bridge spans, headroom and clearance requirements, the construction methods and sequence of construction that would impact on existing network rail assets. The future South Wales mainline electrification project would also be taken into account. A basic Asset Protection Agreement would be concluded with Network Rail before construction commenced.

National Grid (O205)

6.719 The CPO would have a direct effect on the assets of National Grid which requires an Asset Protection Agreement to be concluded with WG.

WG response

6.720 It is accepted that the company's electricity transmission network would be potentially affected by the scheme and that an asset protection agreement would be entered into (ID/097).

Western Power Distribution (WPD) (O303)

6.721 The scheme would have an adverse impact on local and strategic electricity distribution networks which are needed to ensure security of electricity supply in the Newport area. The network would need protection during the construction phase and after completion. No details are shown of how replacement cable or overhead lines would need to be relocated as a consequence of the scheme. Erroneous routing could potentially result in a significant negative impact on the distribution of electricity in the area. WG would need to enter into an agreement with WPD to assure that its assets are protected and that all costs would be met by WG.

WG response

6.722 WG would be prepared to enter into an undertaking with WPD to ensure the security of the company's apparatus and underwrite the costs.

Surf Telecoms Ltd (O304)

6.723 The company is an associate company of WPD South Wales plc and operates the telecommunications cables, lines and other apparatus within the area which would be affected by the scheme. The company is keen to work with WG to reach a practicable solution to the issues which would otherwise arise (ID/124).

WG response

6.724 WG would endeavour to work with Surf Telecoms Ltd to ensure, within contractual and financial acceptable guidelines, that no electricity supplies would be affected and all apparatus and plant were adequately

protected (ID/124).

Dŵr Cymru (O321)

6.725 The company objects to the scheme until a satisfactory agreement has been formed and authorised by WG

WG response

6.726 WG accepts that apparatus and access to it would be affected by the scheme and will continue to work with the company in order to reach an agreement that is satisfactory to both parties.

British Telecom (BT) (O7 & O6897)

6.727 An undertaking would need to be agreed to secure the necessary funding for diversion works and protect the rights under the relevant Acts.

WG response

6.728 WG would be prepared to enter into an undertaking with BT to ensure the security of the company's apparatus and underwrite the costs.

Vodafone Ltd (O90)

6.729 An Asset Protection Agreement would need to be completed to ensure that the company's apparatus was protected.

WG response

6.730 It is accepted that the company's plant may be affected by the scheme and that an Asset Protection Agreement would be entered into (PIQ/139).

The Newport Harbour Commissioners (O71)

6.731 The initial objection of the Commissioners was withdrawn after WG published revised plans for the Docks and reasons why the CPO was justifiable in respect of the River Usk.

WG response

6.732 WG is seeking an easement for CPO plot 8/3 as an easement under the Highways Act 1980, subject to assurances given to ABP and the Commissioners

Written Objections from Individual Statutory Objectors

Statutory Written Objections from the farming community

Inspector's Note

At the Inquiry several round table discussions were held to clarify current positions on all discussions and agreements that were evolving with those representing the farming community and recorded in ID007, the final version of which is ID007d which details the

positions reached at the end of the Inquiry. The initial objections of the farming community are summarised immediately below.

Mr Jeff Neale of 2 Ty'n-y-Brwyn Farm (O03)

6.733 Mr Neale is concerned with the proposed closure of the eastern arm of the lane into the farm, shown on the SRO Site Plan 2. Access to the farm is already dangerous and the closure would significantly increase the risk. Vehicles turning from the east and those exiting the lane would be completely unsighted until the very last moment.

6.734 Any new entrance would need to:

- accommodate more than one vehicle, possibly from different directions
- accommodate large service vehicles, such as waste collection, fuel deliveries and farm traffic safely and in all weather conditions and,
- provide safe entry and exit having regard to the speed of traffic on the A48.

6.735 The ditch to the east of the farmhouse already struggles to carry wet weather flows because of the pipe restriction at the southern end. The pipe, and possibly the ditch itself, would need to be upgraded to cope with the planned additional flows.

WG response

6.736 It is accepted that the proposals set out in the draft SRO would give rise to difficulties and a modification would be promoted to satisfy the safety concerns over the access. During construction traffic management would be in place on the A48 for the safety of road users. Thereafter the eastern access would be permanently reinstated.

6.737 The drainage from the eastern part of the Castleton interchange would be captured by the new highway drainage system and routed to a water treatment area. This would enable the run-off to be attenuated to a rate of flow similar to that from the existing catchment.

W&M Macdonald (Pencarn Farms Ltd) (O19)

6.738 The proposed access to the farm may be insufficient to cater for articulated lorries and combine harvesters. A suitable modification would result in the withdrawal of the objection.

WG response

6.739 The access would be via the roundabout on the A48, along Celtic Way and Duffryn Lane to a new section of track labelled 4/3a and 4/3b in the SRO. Subject to agreement, WG would promote Modification 51 to improve the access off Green Lane (ID007d).

Mr Lyndon Williams of Upper Grange Farm, Magor (O48/O241)

6.740 The viability of the agricultural holding would be threatened following the loss of land not essential for the scheme, the construction of which would create noise and dust, difficulties to the dairy farming operation, and enjoyment of the retained property.

WG response

6.741 Forty-four acres of the 254-acre holding would be affected by the scheme. Of that, 33 acres would only be required for an easement in order to discharge surface and flood water, and for flood management. The viability of the holding would not be threatened (ID007d, ID151).

6.742 During construction, there would be full adherence with the legal constraints of the Control of Pollution Act 1974, along with full engagement of the objectives of the Considerate Contractors Scheme. That would ensure good communication with an effective response to issues raised by the public. Compensation would be available to landowners who are affected by the scheme and would include payments in respect of disturbance and injurious affection (ID007d).

Messrs J & P Baker, Maerdy Farm (O145)

6.743 The scheme would remove high quality land east of Church Lane and CPO plot 3/4d should not be required, whilst the small areas of severed land adjacent to CPO plot 5/3 should be included in the land to be purchased because they cannot sensibly be farmed.

6.744 The woodland beyond plot 4/4b would become inaccessible and therefore should be included in the CPO.

6.745 Plots 20/2 and 20/3 are productive arable land, and unjustifiably have been earmarked for environmental mitigation and pasture. That might cause drainage problems on adjacent farms.

6.746 Other less productive land should be sought.

6.747 The small areas of land and buildings not acquired under the draft CPO should be included, for example plot 5/3bd.

6.748 An appropriate modification should be advanced covering these points (ID007d).

WG response

6.749 The areas earmarked for landscaping could be reduced in size by modification 59. Areas of land not currently included in the CPO, covering plots 5/3b, 5/3g, 5/3h and 5/3j could be included by modification 59A. There is no justification to the inclusion of access to the woodland in the Orders. The inclusion of arable land in the CPO is justified and accords with the views of NRW. Notices could be served on WG to start the

process of purchase of land, farmhouse and buildings not needed for the scheme, under Section 8 of the CPO Act 1965. An appropriate modification (Modification 59a) could be advanced to deal with the minor points of concern (ID007d).

Mr Nicholas and Mrs Rebecca Clarke of Whitecross Farm (0207)

6.750 There is lack of clarity in respect of the nature, extent and duration of the works that would affect CPO plots 6/6, 6/6a, 6/6b and 6/6c. Vehicle access to the driveway and garden of the secluded Whitecross Farm is a concern, as is potential noise, air and light pollution. The height of the proposed motorway structure immediately to the south of the farm is likely to have a major impact on the property, particularly during construction (ID007d).

WG response

6.751 A full explanation of the purpose of the CPO plots has been supplied to Mr and Mrs Clarke and demonstrates that all would be essential for the provision of the scheme, including the realignment of Lighthouse Road and a new farm access with vehicle access being maintained throughout the construction. Near Whitecross Farm, Lighthouse Road would be on a 1m high embankment but the road and its overbridge would stand about 9.5 m above the existing ground level and carry parapets along its edge which would be 1 m higher than the road level. It is accepted that 15 years after opening the scheme would give rise to a discernible 3dB(A) increase in noise at the farm, but no significant air quality issues would arise.

Mrs T C F Allen of Myrtle House, Coedkernew (0211)

6.752 Should the scheme go ahead the loss of facilities and value of the paddocks adjoining the property, together with income from a telecom mast which is subject to "hold-over" by the tenants would need to be dealt with.

WG response

6.753 Matters of land and property value and compensation would be considered by WG in line with the Compensation Code and various Land and Compensation Acts. These would apply in the case of Mrs Allen (ID007d).

R P Richardson (Gwent) Ltd and Mrs D Alred (0212)

6.754 The CPO land-take is not essential for construction, yet the scheme would threaten the viability of the agricultural holding and enjoyment of the retained property during and post construction.

WG response

6.755 About 11 acres, including 2 acres (0.8ha) for essential mitigation, would

be the minimum needed for the scheme and would be taken from the holding which comprises 77 acres (31ha). A further acre would be necessary and permanently required as an easement for maintenance purposes. During construction, WG would be committed to working closely with landowners, the two local authorities involved and other key stakeholders to minimise the community and environmental impact of the scheme. There would be full adherence with the legal constraints of the Control of Pollution Act 1974 along with full engagement of the objectives of the Considerate Contractors Scheme. Following discussions, it has now been confirmed that whilst the owner maintains an objection, all issues relating to the landholding are now matters of compensation (ID007d).

Messrs J S & R E Anstey of Old Court Farm, Rogiet (O213)

6.756 The land, included in the CPO, is not essential for the scheme, yet acquisition would threaten the viability of the farm and enjoyment of the retained property during and post construction. The property is currently on the market with planning consent for conversion, but the scheme would have an adverse effect on marketability.

WG response

6.757 The revised SSSI mitigation strategy would reduce land-take from the holding by approximately 6ha (14.7ac). However, it is accepted that approximately 47.5% of the landholding would still be needed and the income from this let-out land would be reduced. WG would accept a blight notice (CD2.4.14, ID107d revised).

Miss Susan Anstey of Court Farm (O214)

6.758 The land, including potential development land, included in the CPO, is not essential for the scheme. Its acquisition would threaten the viability of the farm and enjoyment of the retained property during and post construction. The bed-and-breakfast business run from the farmhouse would be lost. The property, which has planning consent for residential conversion, would be very close to the proposed new roundabout and its sale would be threatened because of that. The acquisition of land included in the Supplementary CPO plot 1/3 would devalue the property and a blight notice will be served on WG.

6.759 The proposal to run surface water through the existing concrete pipe located in the land to the south of CPO plot 1/3 may lead to flooding because of the high culvert level. Severe waterlogging and flooding of the field already occurs in winter as a result of water running off the B4245 and Court Farm cottages.

WG response

6.760 About 56 acres (22.7ha) of land would be taken for the scheme, of which 49 acres would be for essential mitigation of its effects. In addition, 23.5 acres (9.6ha) would be taken temporarily for construction, including 0.5 acre which would be required for easement. A further 0.6 acre (0.25ha)

would be required for easements. The total area of the holding is 91 acres (37ha) and it is accepted that the scheme would result in 46% being lost from the holding. There is an error in the CPO in respect of plot 23/7 and that could be corrected by a modification.

- 6.761 All land within the draft CPO is the minimum land required and is essential for the construction, maintenance and operation of the scheme. However, it is accepted that the acquisition of Supplementary CPO plot 1/3 cannot be justified but WG would still require an easement to an area surrounding the headwall to the pipe and outfall, and title to the land on which the headwall structure would stand. A modification to the supplementary CPO would be recommended to reflect this.
- 6.762 The drainage design would not increase surface water discharge to a rate greater than the current green-field run-off.
- 6.763 During construction, WG would be committed to working closely with landowners, the two local authorities involved and other key stakeholders to minimise the community and environmental impact of the scheme. There would be full adherence with the legal constraints of the Control of Pollution Act 1974 along with full engagement of the objectives of the Considerate Contractors Scheme.
- 6.764 Compensation would be available to landowners who are affected by the scheme. Access to the property would be maintained at all times and therefore the bed-and-breakfast business could continue. It is recognised that a blight notice has been served and that will be considered in due course (ID007d).

Mr D Colley of Great House Farm (O215)

- 6.765 The non-essential CPO would threaten the viability of the farm of 165 acres (67ha).

WGs response

- 6.766 The permanent land-take included in the CPO is 80.5 acres (32.2ha) of which 9 acres (3.65ha) would be for essential mitigation. There would be a further 7 acres (2.8ha) temporarily taken during construction for soil storage and a material excavation borrow pit. All land is let out to tenants.
- 6.767 All land included in the draft CPO is the minimum required and is essential for the construction, maintenance and operation of the scheme. The land to the south of the B4245 (labelled plots 17/6c and 17/6d on CPO site plan 17) would be required temporarily for storage and compound areas. These areas would be appropriately restored and be available to be returned to the current holding at the earliest possible time following construction. Plots 17/6a and 17/6b would be required for woodland planting, although it may be possible, during the detailed design stage, to relocate the mitigation in plot 17/6a. Some of this land has been identified for stone extraction and material for use in the

scheme's construction (ID007d, ID151).

Mr Derek David of Fair Orchard Farm, St Brides Wentlooge (O216)

- 6.768 The CPO land, including potential development land is not essential for construction yet the scheme would threaten the viability of the farm and enjoyment of the retained property during and post construction. The scheme would adversely affect the family property in terms of noise and air pollution and alter the drainage of low-lying land. The access arrangements could be improved, the truncated length of Lighthouse Road gated off and the CPO reduced in size near the garden of the farm. Further details of access would need to be explored.
- 6.769 Whilst no blight notice would be served, the position to do so or seek discretionary purchase is reserved.

WG response

- 6.770 The permanent essential land take included in the CPO is 33 acres (13ha) of which 4 acres (1.6ha) would be for essential mitigation. Five acres would be required for easements and a further acre for temporary construction use. The total land holding is 584 acres (237ha).
- 6.771 All land included in the draft CPO is the minimum required and is essential for the construction, maintenance and operation of the scheme. During construction, WG would be committed to working closely with landowners, the two local authorities involved and other key stakeholders to minimise the community and environmental impact of the scheme. There would be full adherence with the legal constraints of the Control of Pollution Act 1974 along with full engagement of the objectives of the Considerate Contractors Scheme.
- 6.772 The proposed Lighthouse Road would be built to the west of the existing road, thereby not severing the existing highway until the new alignment is available. Access to the farm would be gained from the new over bridge and realigned Lighthouse Road which would be constructed early during the construction period. New north-south accesses across the farm would be provided, including one which would need to be shared with New Dairy Farm. The proposed southern access off Lighthouse Road could be abandoned in favour of an alternative and WG would be prepared to advance a modification to the access. The access from the proposed Lighthouse Road would be 7 m wide and capable of accommodating a large articulated vehicle similar to the ones that can currently access the property. The access could be gated and fenced. WG would not object to the abandoned length of Lighthouse road being fenced off and further discussions would ensue.
- 6.773 It is accepted that CPO plot 6/4y could be amended to ensure that no area of the garden to the property would be affected by the scheme. Subject to agreement a modification to the CPO could be promoted.
- 6.774 Following the opening of the proposed motorway Fair Orchard Farm

would experience a discernible noise increase of about 6dB(A). There would be no significant local air quality effects.

- 6.775 The drainage in the vicinity of the property would consist of highway cut-off ditches, replacement field ditches and drains. The Green mitigation strategy has been designed to ensure that current water levels in the system are maintained and would not increase fluvial flood risk. The proposed ditches adjacent to the farm buildings are a highway cut off ditch and a replacement field ditch. These would not increase the flood risk to the land (ID007d).

Mr Huw and Mrs Brenda Edwards of New Dairy Farm, St Brides Wentlooge (O217)

- 6.776 The acquisition of CPO land would threaten the viability of the farm which would be severed and left with unsatisfactory access.

WG response

- 6.777 The permanent essential land-take included in the CPO is 10.1 acres (4.1ha) of which 1.1 acres (0.45ha) would be for essential mitigation. Temporary land-take would amount to 3.7 acres (1.5ha), including permanent easements of 0.1 acre (0.04ha) and 0.6 acre (0.24ha). The total land holding is 294 acres (122ha). It is accepted that the permanent loss of land may require a slight reduction in the livestock numbers from the large dairy enterprise and that during construction the temporary loss of land, which would return to the landowner upon completion, would be disruptive.

- 6.778 It is confirmed that the access road leading to the property would need to be stopped up but a new access would be provided to pass over the proposed motorway on a new over bridge. Access tracks to parcels of land severed by the New Dairy Farm over bridge would be provided by a Modification 14 to the SRO (ID007d).

Mr W T German of Arch Farm (O218)

- 6.779 The scheme would leave a useless severed area of land. The proposed water attenuation area should be relocated onto the severed area or realigned to reduce the impacts on the agricultural land which would otherwise be affected. The scheme would have an adverse effect on the property in terms of noise and outlook but Modification 46 would satisfy the objection.

WG response

- 6.780 No severed land would be left after construction because the plots concerned would be landscaped. The water treatment area would not work hydraulically if it was repositioned. However, a modification to the draft orders would be beneficial in order to reduce the severance of land which would come about from the proposed location of the water attenuation area in plot 10/5. WG would be prepared to promote

Modification 46 to accommodate that (ID007d).

Executors of D G Harris (O219)

6.781 The scheme would cause severance and the loss of land with development potential which could be offset by a modification to the draft Orders.

WG response

6.782 The permanent land take in the CPO is about 4.2 acres (1.74ha), against a total land owner holding of 21 acres (8.5ha). WG would pursue a modification to offset the effects of the scheme on severance, although the remaining area of land would have access off Greenmoor Lane. Compensation could be payable for any losses incurred (ID007d).

Mr M D W Hazell of Cefn Henllan Farm, Llanhennock (O220)

6.783 The scheme would cause severance and the loss of land with development potential to the east of North Row.

WG response

6.784 All land included in the CPO is the minimum required and is essential for construction, maintenance and operation. Whilst the land would be severed fresh access has been defined in the SRO to the north and south of the scheme (ID007d).

Mr P G and Mrs D J Howells of Pant Rhiw Goch Farm (O221)

6.785 Not all the CPO land would be needed for the scheme.

WG response

6.786 The scheme would acquire 1.4 acres (0.6ha) of land from a total landowner holding of 61 acres (24.8ha). Of the 1.4 acres (0.6ha), 0.3 acre (0.1ha) would be required for the motorway, 0.5 acre (0.2ha) for permanent easement and 0.6 acre for temporary construction purposes. All would be essential (ID007d).

Mr B G James of Courtfield Farm, Undy (O222)

6.787 The scheme would have an adverse effect on the dwelling house, farm and adjoining land because of the proposed tree planting and stone extraction.

WG response

6.788 The land would be required as essential mitigation for woodland planting. Some of this land had been identified for stone extraction and "material borrow", but it would be restored upon completion of the construction and prior to planting. Compensation for injurious affection under the Land

Compensation Act 1973 may be payable should the value of a property depreciate (ID007d).

Mr David James of North Court Farm (O223)

6.789 The CPO includes non-essential land for the scheme which would cause severance of land north and south of the proposed motorway. The remaining area of the parcel of land adjacent to CPO plot 422h should be purchased.

WG response

6.790 The scheme would acquire 43 acres (17.8ha) of land permanently, included 15 acres (6ha) of essential mitigation land and 2 acres (0.8ha) for permanent easements with 1 acre (0.4ha) for temporary construction purposes from a total land holding of 170 acres (69ha). A further 32 acres (13ha) would be required from the total tenanted holding leased from TATA of 72 acres (29ha). All would be essential.

6.791 The accesses labelled 12/4a and 12/5a of the SRO from North Row would negate severance in that area, while the accesses currently used off Rush Wall Lane would continue to be off that highway, and CPO plot 422 would be accessed from a new access labelled 13/1a on SRO Site Plan 13. There is no justification for the public purchase of land adjacent to CPO plot 422h (ID007d).

Trustees of F H James and F H James Partnership, Penterry Farm, St. Arvans (O224).

6.792 The CPO includes land, including potential development land, which would not be essential for the scheme. There would be severance of land areas both north and south of the proposed motorway (ID007d).

WG response

6.793 The scheme would acquire 27 acres (11ha) of land permanently, including 13 acres (5ha) for essential mitigation and 1 acre (0.4ha) for permanent easements, with 1 acre (0.4ha) for temporary construction purposes from a total landowner holding of 40 acres (16ha). All would be essential but none of the land shown in the CPO is within Newport City Council's published LDP (PIQ/109, ID007d).

Mr R M Jenkins of Red House Farm (O225)

6.794 The scheme would take land from the holding, which is not essential for the scheme and would threaten the enjoyment of the retained property during and after construction.

WG response

6.795 The CPO includes 6 acres (2.5ha) of essential permanent land take, including 1 acre for essential mitigation and 1 acre of temporary land-

take for construction. That represents only 10% of the land owned.

- 6.796 During the construction phase WG would work closely with the two local authorities, landowners and other key stakeholders to minimise the community and environmental impact of the scheme. There would be full adherence with the legal constraints of the Control of Pollution Act 1974 along with full engagement of the objectives of the Considerate Contractors Scheme (ID007d).

Mr C W Jones of Barnetts Farm (O226)

- 6.797 The scheme would sever fields and a commercial block of land on Caldicot Moor, which is not ancillary for or adjacent to the proposed motorway.

WGs response

- 6.798 The CPO includes 54 acres (22ha) of land for essential mitigation out of a total land holding of 184 acres (75ha). The land to be acquired would be needed to mitigate the loss of areas of grazing marsh from designated SSSIs but the area of it could be reviewed and potentially reduced in the CPO upon making of the Order (ID007d).

Mr William Jones of Carrowhill Farm, Tyn y Brwyn (O228)

- 6.799 The scheme and its construction would severely affect the agricultural holding (Tyn-y-Brwyn Farm). The essential licence area would be distant from the line of the proposed motorway and, as such, could not be considered as ancillary, essential or a lawful application of the Highways Act 1980 or Acquisition of Land Act 1981. Following construction, it is not clear what the effect of the essential licence and potential use of the land on its agricultural quality would be. A blight notice would be served on WG.

WG response

- 6.800 The CPO includes 0.87 acre (0.3ha) of permanent land take for essential mitigation land, together with a temporary land take of 25 acres (10ha), which includes a permanent easement of 0.31 acre (0.1ha). The total land holding is 108 acres (44ha). Section 249 of the Highways Act 1980 outlines the distance limits from the highway applicable for compulsory acquisition. There are no limitations for the land required for the purposes connected with the construction or improvement of highways or for the mitigation of adverse effects of highways or the proposed highway surroundings (D3.1.5). CPO plot 2/18k would be required for the stockpiling and processing of materials. In this area the stripping, storage and reinstatement of topsoil and/or, subsoil would be carried out in accordance with a soil handling methodology using best practice guidance. Land would be reinstated to an appropriate standard and returned to the owner following completion.

- 6.801 The blight notice would be resisted but consideration would be given to

discretionary purchase of certain parts of the holding (ID007d).

Mr John and Mrs Joan Major of Langley Villa, Magor (O229)

6.802 Should the scheme proceed, the property, which has been a family home since 1955, would have its value severely diminished by:

- the loss of the adjoining paddock;
- the loss of a belt of trees which protect the property from the existing M4, and
- severe noise and dust problems during construction.

6.803 There would also be a loss of the paddock north of the M4 motorway and the pony paddock adjacent to the house, for purposes not essential for the scheme. This land has potential for development. The enjoyment of the retained property would be adversely affected during and post construction from public use of the proposed bridleway adjacent to the house.

WG response

6.804 During construction, WG would adhere to the requirements of the local authority and other key stakeholders to minimise the community and environmental impact of the scheme, having regard in particular to affected landowners. All land included in the CPO is essential and the minimum that would be required for the construction, maintenance, operation and mitigation of the scheme. Plot 16/6C would be required for the construction of a water treatment area and, although alternative locations have been investigated, no viable ones have been found that would work hydraulically. The loss of the paddock would be essential for the construction of the trunk road and the realigned St Brides Road.

6.805 The proposed bridleway could be repositioned to be on the north side of the proposed water treatment area, further away from the property. WG would agree to a modification to the CPO and SRO to facilitate that change. Compensation would be considered for any injurious affection which would arise from the scheme.

Miss Laura Neville of Cefn Llogrl Fach, Coedkernew (O230)

6.806 Should the CPO be made the viability of the agricultural holding would be threatened. The scheme would affect the retained property both during construction and thereafter and the proposed access location should be changed to a more southerly position.

WG response

6.807 The CPO includes 14 acres (5.7ha) of permanent land take, of which 11 acres (4.5ha) would be acquired for essential mitigation, together with a temporary land take of 1 acre (0.4ha). The total land holding is 72 acres

(29ha). During construction, WG would adhere to the requirements of the local authority and other key stakeholders to minimise the community and environmental impact of the scheme, having regard in particular to affected landowners. It would be prepared to promote a modification to amend the location of the access labelled 2/7a of the SRO (ID007d).

Miss Christine Phillips of Green Farm, Rogiet (O232)

6.808 The scheme would adversely impact the running of the productive dairy and mixed use intensive farm, both during and post construction. It would adversely affect the residential property and farmstead and the enjoyment of the property during and after construction.

WG response

6.809 The farmstead holding is 6 acres (2.5ha), all of which would be required for the scheme. The residential property, land and access would not be affected. During construction, WG would adhere to the requirements of the local authority and other key stakeholders to minimise the community and environmental impact of the scheme, having regard in particular to affected landowners (ID007d).

Mr J W Prichard of Little Orchard, Coedkernew (O234)

6.810 The scheme would affect the enjoyment of Little Orchard during and after construction, with the prospect of a large earthwork embankment being built immediately in front of the residential bungalow.

WG response

6.811 The proposed motorway embankment would be planted with trees to aid screening. Any injurious affection which would be suffered at the property would be met by compensation under the Land Compensation Act 1993 (ID007d).

Mr William Reece (O236)

6.812 Land, including potential development land, has been included in the CPO which is not essential for the road and its loss would threaten the viability of the holding. Should the scheme be constructed there would be a loss of enjoyment of retained property during and after construction.

WG response

6.813 The permanent and essential land take from the holding of 40 acres would only be 9 acres (3.6ha) and include 3 acres (1.2ha) for essential mitigation. In addition, there would be a very small area required for easement purposes. The land would be required for construction, maintenance, operation and mitigation of the effect of the scheme. Compensation would be available to landowners who are affected by the scheme and includes payments in respect of disturbance and injurious affection. During construction, there would be full adherence with the

legal constraints of the Control of Pollution Act 1974, along with full engagement of the objectives of the Considerate Contractors Scheme (ID007d).

Mrs Jane Renton of Green Farm, Rogiet (O237)

6.814 The acquisition of the title and license land in the CPO for the scheme would have an adverse impact on the running of the productive dairy and mixed-use intensive farm both during construction and later. The scheme would have an adverse effect on the residential property and barn conversions, on which planning permission is pending at Green Farm and would negate the enjoyment of property during and after construction.

WG response

6.815 It is accepted that the realignment of Bencroft Lane would require land from Green Farm and that the cottages at Green Farm would lie about 289 m east of the proposed gyratory carriageway of J23 and about 120 m east of the proposed roundabout on the B4245. Any proven injurious affection that would be suffered at the properties would be met by compensation.

Mr Arthur Smith of Orchard Farm, Undy (O238)

6.816 The CPO land, which accounts for a third of the agricultural business, would not be essential for the road. The acquisition would threaten the viability of the farm. CPO plot 16/17c has being earmarked for woodland to screen an agricultural barn and farm buildings and should be removed from the CPO. The need for plots 16/17f and 16/17G is not proven. Should the scheme be constructed the remaining land would be adversely affected during and after construction.

6.817 The proposed access to the old wood ground (that would affect plots 16/17a, 16/17b and 16/17c) should be moved westward away from the farm buildings, avoiding mature trees and a mixed species hedgerow.

6.818 The scheme would not answer the traffic congestion problems in south-east Wales. There are far less expensive alternatives available which would take less agricultural land, cause less damage to the environment and be more acceptable to locals.

WG response

6.819 The total holding is 8 acres (3.3ha), of which 2.5 acres (1ha) would be affected. This is made up of 1.3 acre of land on which the highway and associated works would be constructed and 1 acre for essential mitigation. Temporary land-take and that required for an easement would account for 0.24 acre (0.1ha).

6.820 It is accepted that the acquisition of plot 16/17c is unjustifiable and would be removed from the CPO. WG would be prepared to issue Modification 33 to the CPO and SRO to enable the access to be moved as

suggested by Mr Smith.

- 6.821 Plot 16/17f would be needed on a temporary basis to provide a new Private Means of Access and to enable that access to line up with the access labelled as 15/9a in the SRO. That would be returned to Mr Smith after construction. Plot 16/17 would be required for the construction of the realigned lane, the underpass on which would need to be extended and the lane realigned in order to tie back into the existing alignment.
- 6.822 The case for the published scheme is set out in the evidence-in-chief of WG. Compensation would be available to landowners who are affected by the scheme and includes payments in respect of disturbance and injurious affection (ID007d).

Messrs J J & A D Turner & Sons of Church Farm, St Brides Wentlooge (O239)

- 6.823 Land has been included in the draft CPO which would not be essential for the road.

WG response

- 6.824 A total of 2.4 acres (1ha) of land would be acquired from the 36.6 acres holding and include 1.9 acres (0.7ha) of permanent land take, with 0.5 acres for easement purposes. The permanent land take includes approximately 0.2 acres (0.1ha) for essential mitigation purposes. All would be essential for the scheme. Compensation would be available to landowners who are affected by the scheme and includes payments in respect of disturbance and injurious affection (ID007d).

Mr Alan Williams of Hendrew Farm, Llandeud (O240)

- 6.825 Land has been included in the draft CPO which would not be essential for the road. Some of this land includes potential development areas.

WG response

- 6.826 Approximately 7.9 acres (3.2ha) of land would be permanently acquired from the holding which covers 117 acres (48ha) in total and includes 2.6 acres (1ha) of land necessary for essential mitigation and 1.4 acres (0.6 ha) as exchange land. A further 1.6 acres (0.7ha) of land would be required for easement purposes (the right to flood) and temporary construction purposes. Should the scheme proceed WG may be prepared to enter into an agreement relating to the right to flood, as an alternative to proceeding to acquire a right through the CPO procedures. Compensation would be available to landowners who are affected by the scheme and includes payments in respect of disturbance and injurious affection (ID007d).

Mr Paul and Mrs Karen Clatworthy of the Old Rectory, Coedkernew (O257)

- 6.827 Mr and Mrs Clatworthy are freehold owners of the Old Rectory and object

to the scheme on the basis that:

- the description of their land in the draft Order is incorrect;
- it is unclear what access proposals are being made, and
- the duration of the works affecting their house and garden is not specified.

WG response

6.828 The CPO land would be necessary to drain existing water run-off but the location of the pipeline could be moved further south to avoid the garden boundary. That would require a modification to the draft Orders. A licence to enable works to proceed would be required for the construction of a new headwall adjacent to the watercourse and the pipeline. An easement would also be required over CPO plot 2/11b for entry purposes for installation, maintenance and replacement of the drainage pipes (ID007d).

Ms Claire Rose of 3 Tyn Y Brwyn Farm, Coedkernew (O273)

6.829 The CPO is opposed and there are also concerns about the proposed changes to access to and egress from the properties and farm.

WG response

6.830 All land included in the CPO would be required for the scheme, including the construction of an alternative means of access to the property. The Tyn Y Brwyn access would need to be closed for about 9 months in order to construct a bridge over the A48. This would be replaced by a new access 2/13a, shown on SRO Plan 2.

Mr Mark Williams, Mr Mark Skinner, Mr Mark Williams (Pension Fund Administrators), Mr Clive Coultard (Hollywood Farm) (O322)

6.831 Other more sustainable, viable and less expensive options exist and should be preferred to the scheme. The land included in the CPO is excessive and wholly disproportionate in the context of the route. The CPO would extinguish a well-established agricultural-based business*

**Inspector's note.*

This ground of objection was withdrawn in writing before the close of the Inquiry.

WG response

6.832 Following on from an extensive consultation exercise at which more than 100 possible measures were considered to solve the problems of the M4 motorway it was concluded that the scheme would offer the best overall solution. The evidence in support of the scheme is set out in the evidence in-chief before the Inquiry.

6.833 All land included in the CPO is essential for the construction, maintenance, operation and mitigation of the scheme and is the minimum that would be required. It comprises about 3.6 acres (1.4 ha) of land which would be taken from the 23 acres (9.4ha) of the holding. The permanent acquisition would cover 2.2 acres (0.91ha), for landscaping and the temporary acquisition would be returned to the owner after construction (ID007d).

Mr M Paul Waters of Great House Farm, Nash (O6891)

6.834 Mr Waters is opposed to the scheme because it would be a poor use of public funds, would not be sustainable, would result in noise and light pollution and would destroy a large area of woodland adjacent to the farm. More specific concerns include the following:

- a replacement drinking slip into Drake's (Lakes) reën would be required to replicate the current free water supply
- a satisfactory drainage system would be required on the southern boundary of the land because of the proposed field severance;
- a holding area for livestock would be required;
- the proposed maintenance access should be repositioned to run from Corporation Road, and
- the side road proposals would result in much longer travel times.

WG response

6.835 An economic appraisal has indicated that the economic benefits of the scheme would exceed its costs. It would therefore represent value for money and aligns with WG's sustainable development principles.

6.836 The scheme would provide a net benefit with respect to noise. Generally, there would be an average noise level reduction of 1.4 dB per property for about 20,600 properties which have been assessed in the corridors of the existing and proposed motorways.

6.837 It is acknowledged that the scheme would affect areas of deciduous woodland and three ancient woodlands would be at risk. Some 83 ha of deciduous woodland and another 20 ha of linear woodland belts and shrubs would be planted as replacement woodland for that lost, representing a replacement ratio of 2.1 to 1. These localised adverse impacts of the scheme need to be balanced against the wider economic and environmental benefits that it would bring. It would be a long-term sustainable solution accounting for all social, environmental and economic factors and would be an essential part of the vision for an efficient integrated transport system in South Wales. The vast majority of the scheme would be unlit.

6.838 WG's response to the specific issues of Mr Waters are:

- the provision of a new drinking slip, or an alternative provision, and any penning area for livestock would be a matter of accommodation works to be agreed between WG, Mr Waters (the tenant) and the landowner if the scheme progresses
- a replacement field ditch would run alongside the northern boundary of the proposed motorway and around the proposed water treatment area. It would be connected into the reen to the east
- a maintenance access would be required for the construction and maintenance of a new bridge across the East Usk railway, Corporation Road, Queensway Meadows Industrial Estate, River Usk and Newport Docks. The type of maintenance vehicles required would dictate the location of the access road. That effectively rules out Corporation Road as an acceptable location because of the complex interfaces with a gas pipeline, the National cycle route and the Uskmouth railway line, and
- Mr Waters' main holding is at Ty Du Farm and at Great House. The current travel distance from the farm to the field affected by the CPO is about 885 m. The distance to the new Private Means of Access, using the realigned Nash Road from Ty Du Farm would be about 1,750 m (ID007d).

Statutory Written Objections from the non-farming community

Railway Paths Ltd (O148)

6.839 There are inaccuracies in the CPO in that plots 9/2c, 9/2e, 9/2f, 9/2g, 9/2f, 9/2g and 9/2j should carry the interest of Railway Paths Ltd but do not. The scheme should include additional infrastructure for active travel and maintain connectivity with National Cycle Route 4, both during and after construction.

WG response

6.840 It is accepted that there have been omissions in the CPO and these would be corrected through Modification 16. In accordance with the Active Travel Act 2013 the scheme includes the creation of new routes for non-motorised users (cyclists, walkers and equestrians) including:

- a new public right away from Green Lane to the south of the new section of motorway to run along the same alignment as the Private Means of Access to Maerdy Farm where it would meet Percoed Lane on the southern side of the NMU bridge
- a new public right of way running eastwards along Rush Wall from North Row to the south of the new section of motorway, linking to Barecroft Common, along an alignment discussed with Newport City Council and Sustrans. This route would provide an off-road link between National Cycle Network 4 and Magor

- a new public right away along the fence line of the new section of motorway from public footpath 372/86/1 to the north of the existing M4 to meet St Brides Road to the west
- a new public right of way from public footpath 372/12/4 to the south of the existing M4 to meet St Brides Road to the west and a new public right away from footpath 372/12/4 to the south of the existing M4 to meet Grange Road to the east
- Newport Road over bridge at the junction of the B4245 and A4810, and
- a grade-separated NMU route using the existing B4245 bridge to cross the A4810 without needing to negotiate the roundabout.

Hanson UK Ltd (O305)

6.841 The operation of the scheme would cause significant disruption and cost to the company. There is an insufficient demonstration of the compelling case in the public interest to justify interfering with the company's rights under the European Convention on Human Rights.

WG Response

6.842 The Hanson land would be required for a temporary siting of a crane to construct a bridge pier, temporary storage for materials and a turning head for deliveries. The occupation period would be extensive. WG is keen to work with the company to seek a practicable solution which would mitigate disruption and satisfy both parties. There is a compelling case in the public interest for the scheme. The CPO is a proportionate interference with the human rights of those with an interest in the land to be acquired. Any disadvantage imposed by the scheme must be weighed against the significant economic, social and other environmental benefits that it would bring. Compensation would be payable.

Technoplan Anstalt (O317)

6.843 The company objects to the compulsory purchase of land at Burnt House Farm, Nash, Newport and in particular CPO plots 9/3, 9/3a, 9/3b/ 9/3c and 9/3d because the scheme would not only blight those areas which had being earmarked for redevelopment but would also reduce the amenity value of the area.

WG response

6.844 The CPO includes about 3 acres of permanent land take, including environmental mitigation land, from the holding of 135 acres (54ha). The scheme would pass through the northern extremity of the larger block of land and would not leave any parcels of land or access severed from the remainder of that block. The land is not within the Newport City Council

LDP. Part of the parcel is within the SSSI. Should the scheme proceed compensation would be considered.

Residual Lands Ltd (O340)

6.845 The company, as owners of the land title reference-CYM675445 has not been properly recognised in the draft CPO.

WG response

6.846 The CPO would be modified to take account of the interests of Residual Lands Ltd.

The Other Written statements from Non-Statutory objectors

Inspector's Note

About 267 non-statutory individual letters, or e-mails of objection were received by the specified deadline. Most objected to the construction of the proposed motorway across the Gwent Levels and through the SSSI's, often citing the effect that the scheme would have on the historic landscape, affordability and the advantage of spending government money on other projects as their basis for objecting. Some believed that a viable alternative that could be built more quickly and at less cost should be favoured. All such points have been considered by the Inquiry but where unique points were made in non-statutory written objections or where specific written statements, in addition to the original objection, were made these have been dealt with below.

The Future Generations Commissioner for Wales (O6923)

6.847 The Well-being of Future Generations (Wales) Act 2015 (the WBFG or 2015 Act) came into force on 1 April 2016 and, based on the Act, the role of the Future Generations Commissioner is to:

- promote sustainable development;
- encourage public bodies, as a statutory duty, to take greater account of the long-term impact of the things that they do, and
- guide the decision-making process to ensure that it takes account of the "five ways of working" laid down in the Act in order to maximise contribution to all of the specified 7 "well-being goals".

6.848 Having regard to these responsibilities, the Commissioner draws attention to a large number of assessments and demonstrations that the scheme should undergo or undertake (presumably at the Inquiry, although that is not clear) and she is opposed to the scheme because:

- of its prominence, large size and significant cost;
- of the need to balance economic, environmental and social considerations and the impact that this would have on future generations;
- it would not be consistent with Wales' commitment to future

generations;

- building a new road would not be in the best interests of future generations, it is not the solution, conceived over 25 years ago, which should be sought in 2017 and beyond;
- there has been no consideration of long-term trends in car-use, working practices and new technologies which are necessary to ensure that the solution to the M4 problem is fit for both current and future generations and is not an out-of-date solution;
- the claim that the scheme would be the most sustainable long-term solution to the current social, environmental and economic problems associated with the M4 is challengeable;
- the WCFG 2015 Act requires WG to explore other ways to address the problem of the M4 by giving greater consideration to the aspirations contained within the national well-being goals, their own well-being objectives and the five sustainable development principles, and
- there is a need for WG to address a number of questions that are, in her view, not clear.

6.849 The Commissioner accepts that the M4 has congestion and that the scheme has been developed in consultation with various interest groups, but the degree of collaboration has been insufficient, (although she did not specify what would have been). In her view, it has not adequately considered the long-term or applied the principles of integration and involvement required by the Act. She considers that “five ways of working” should have been applied at the outset of the decision-making process, rather than being retrofitted to justify a decision already taken and highlights that WG has a duty under the Act to carry out sustainable development.

Inspector's Note:

There appears to be an error in the second sentence of paragraph 3 of section 3 of the Commissioner's written summary statement of evidence which, if read as written-including what appears to be a double-negative - means that the Commissioner is content that WG's evidence submitted to the Inquiry is in accordance with the Act. I have assumed that this sentence should have read to the contrary and I have assessed the Commissioner's evidence as if that was the case, ie WG approach is regarded by her to be contrary to the Act.

6.850 The “well-being goals” enshrined in the Act are designed to ensure that Wales becomes a more prosperous, resilient and equal country, with healthier, more cohesive communities, displaying a vibrant culture and is globally responsible. In that regard, the Commissioner disagrees with the analysis set out in the Sustainable Development Report for the scheme, which seems to her to insufficiently demonstrate how the scheme would contribute towards these aims. She considers that there is no evidence proving that the M4 would contribute towards balancing inequality, as it

would not benefit a quarter of mostly poor households who do not have access to a car. Neither is there evidence that the scheme would help to address climate change by reducing emissions, or how unspecified community transport services could be funded to prevent people having to travel on the M4.

6.851 The Commissioner draws attention to the Act which seeks to change the way in which citizens are involved in the decision-making process by moving away from public consultation to more innovative engagement techniques, where ideas can inform the development of solutions from the start. For the M4, there appears to have been a lack of integration and collaboration with other regional initiatives like the Metro.

6.852 A prosperous Wales is one that is defined as an innovative, productive, low-carbon society which recognises the limits of the global environment and uses resources efficiently and proportionately and acts on combatting climate change. The country needs to develop a skilled and well-educated population in an economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work. It seems that the scheme's economic assessment has not taken this wider definition into consideration and it fails to incorporate the government's own objectives on green-growth or a de-carbonised agenda. That is required by the Environment Act (Wales) 2016.

6.853 The Commissioner also believes that there is insufficient demonstrative evidence illustrating how the scheme would deliver:

- ecological resilience having regard to Wales' ecological footprint
- sustainable infrastructure that would generate economic growth and support improved public health
- proportionate and responsible resource use, and
- reduced carbon emissions.

6.854 The Commissioner believes that the potential risks and harms that the scheme would generate have been understated whilst, in her view, the potential benefits are both narrower than the Act demands and unlikely to be progressively distributed.

6.855 In leaning-on the evidence of other strategic objectors, the Commissioner criticises the scheme evidence because it does not prove that the scheme would bring economic prosperity to Wales or create jobs by opening up employment opportunities and lowering commuting costs. She echoes the thoughts that construction may not generate an improvement in local skills, supply chain prosperity, or economic benefit from the construction because Wales does not have sufficient large contractors to carry out the project and therefore money would leak out of the country.

6.856 She doubts whether a new motorway would contribute towards

communities or facilitate the promotion of low-carbon growth in Wales because it was promoted on the basis of WelTAG 2008 which does not reflect current thinking about impact on health, culture and communities.

- 6.857 An alternative solution based on a package of public transport measures and restrictions on vehicular access to the M4 should be considered, together with a substantial investment in public transport including the Metro, better integration between rail and bus schemes, encouraging local traffic to use local roads, creating park-and-ride schemes on the outskirts of Newport and the development of a tram route to cross Cardiff and Newport, all along the lines advocated by Friends of the Earth and Professor Stuart Cole.
- 6.858 The Commissioner believes that there are alternative ways of spending £1bn public money that would have greater benefits for future generations. She considers that using WG's borrowing powers to finance one scheme, which would result in geographically, economically and socially disproportionate benefits to only one-part Wales, would be ill-conceived.

Inspector's note.

On 13 September 2017, the Future Generations Commissioner for Wales, feeling duty-bound, wrote to me submitting supplementary evidence which she considered necessary as a result of a private meeting she had held with an un-named objector who had apparently alleged to her that, during the course of the Inquiry, WG had not appropriately interpreted the provisions of the WBFG 2015 Act in relation to its proposals for the M4. She sought to avoid an incorrect precedent being set by the representations made to the Inquiry, presumably in WG's evidence and submissions to the Inquiry.

The Commissioner chose not to attend the Inquiry to present or explain her initial objection, submitted in February 2017, or this supplementary evidence, or have it tested by examination, but I report below the gist of her fresh evidence, and later WG response to it.

The Commissioner's additional evidence

6.859 She considers that:

- the WBFG 2015 Act requires a transitional approach to be established to ensure that sustainable development reflects the innovative concepts introduced by the Act. A Future-Generations Framework has been developed as an aid to decision-making in accordance with the sustainable development principle for infrastructure projects. The scheme should be subject to that assessment;
- the 4 pillars of well-being, the 5 ways of working, the 7 goals and the well-being objectives of public bodies under the Act should be considered together, and equally, to carry out a proper balancing exercise. Solutions that address the four pillars together and select the one that delivers best against all four should be adopted, but no one pillar should override the others. Public bodies must identify solutions that maximise contribution to all four pillars of

well-being but essentially disregard those contributing to one or two pillars only;

- the WBFG 2015 Act was developed alongside the Environment (Wales) Act 2016 and it is clear that both Acts reinforce each other and should be applied to developing schemes. In that regard, the scheme seems to directly contradict the National Resources policy outlined under the Environment (Wales) Act 2016;
- under Section 52 of the WBFG 2015 Act public bodies are required to take an integrated approach to ensure that decisions are made in the light of the bigger picture whilst not ignoring the impact that a decision would have on others, and
- in the case of the scheme, proposals were developed using the WelTAG process which does not reflect the requirements of the 2015 Act.

6.860 The Commissioner accepts that whilst transitioning from the traditional approach to the new innovative and revolutionary way of working would be challenging, the new ways of working must ensue. In that regard the scheme, given its scale and importance, must not set the wrong example which could permanently damage the spirit of 2015 legislation.

WG response

6.861 Contrary to the opinion of the Commissioner, the WBFG 2015 Act has been applied and interpreted correctly and WG has acted fully in accordance with both the sustainable development principle and its duties under the Act. It is accepted that the Act requires moving from a traditional approach to sustainable development to the innovative concepts it introduces and the Future Generations Framework is a useful decision-making tool in accordance with the sustainable development principles for infrastructure projects.

6.862 The earlier scheme development actions have been scrutinised and shown to be in accordance with the sustainable development principle now enshrined in the WBFG 2015 Act. The WelTAG Process was used in the development of the scheme and included a vigorous appraisal both of the various options and their ability to achieve the identified objectives which were arrived at following widespread stakeholder and public consultation. This involves development work including economic assessment, social impact assessment and environmental assessment. A Strategic Environmental Assessment was undertaken, published and subject to statutory consultation. Separate environmental objectives were developed as part of the Strategic Environmental Assessment work. This comprehensive approach is set out in the Sustainable Development Report (CD4.4.6, CD2.3.11).

6.863 The Commissioner is also incorrect in claiming that the impacts on health, culture and communities were disregarded. She has failed to appreciate that the adopted process incorporated both a Health Impact

and an Equality Impact Assessment both of which were carried out at each stage of the scheme's appraisal. Similarly, the Environmental Impact Assessment also incorporated a combined health, social and equalities impact assessment. That was published alongside a suite of reports supporting and explaining the draft Orders, including the Sustainable Development Report, which considered the scheme in the light of the WCFG 2015 Act and explained its contribution to the 7 well-being goals. It is very clear fact that WG, in the development of the scheme, made particular efforts to go above and beyond the minimum requirements of the WeITAG process.

- 6.864 WeITAG is the recognised means of appraising new transport proposals in Wales. It has been explicitly developed to reflect and comply with the sustainable development duties and there is no basis for concluding that the previous process was flawed simply because it was carried out before the WCFG 2015 Act. Indeed, it would not be helpful to assess the scheme against a new framework, at the time of publication of the draft Orders, that had no recognised formal status and does not appear to have been subject to the same consultation process as that involved in developing WeITAG.
- 6.865 It is accepted that public bodies should seek solutions that deliver the best outcome across all four aspects of well-being, including the definition of sustainable development – economic, social, environmental and cultural issues. However, contrary to the indication given by the Commissioner, there is no requirement that a scheme must improve all four aspects of well-being. That is not what Section 2 of the WCFG 2015 Act says or means. Sustainable development is defined as the process of improving the four aspects of well-being by "taking action" in accordance with the sustainable development principle. In this case the action equates to the scheme, which accords with the sustainable development principle. The Commissioner has misinterpreted the Act and based her evidence on that misinterpretation.
- 6.866 By addressing the serious congestion on the M4 the scheme would provide economic, environmental and social benefits. It would contribute to an improvement of the cultural aspect of sustainable development to some extent. In so doing, it complies with the Act and, as one of many projects, would play its role in collectively improving well-being in Wales, whilst other projects would individually contribute in a different measure to each of the four aspects. In this regard, it is noteworthy that Section 3 of the WCFG 2015 Act is to maximise "its" contribution to achieving those goals which clearly means the impact of WG's actions as a public body, rather than the impact of individual actions. In that specific regard, the Commissioner is incorrect in her interpretations.
- 6.867 The scheme would achieve a reduction in carbon emissions but WG is not reliant on the scheme to deliver a low-carbon strategy; many other measures can be employed to encourage low-carbon lifestyles.
- 6.868 The draft 2018/19 Budget confirms the borrowing powers for

infrastructure schemes, including the planned M4 relief road around Newport, whilst the earmarked £50 million for Llanwern station demonstrates the sustainable development principle of integration in operation as the scheme would connect with the new station and the park-and-ride facility. The budget also includes £7.5 million to reduce tidal flooding risk in Newport (which has some relevance for the scheme) and £173 million for the South Wales Metro, a project which is fully compatible with the scheme, in developing overall integrated transport for that part of Wales.

- 6.869 The Commissioner is again wrong to suggest that the WCFG 2015 Act requires public bodies to cease taking actions that would harm elements of well-being. It would be impractical to rule out any development if it were to cause harm to one aspect of well-being, without assessing that harm against the improvements to other aspects of well-being which it could bring. Balanced decisions must always be made that weigh the likely impact against the benefits of well-being. In this regard, attention is drawn to the Commissioner's view that one aspect should not be traded-off against another, a view that seems to be in direct conflict with her Future Generations Framework which suggests that one of the questions to be asked is: *"what are the trade-offs emerging between different aspects of well-being and sustainability and how have these been minimised?"*
- 6.870 In any event, the Commissioner's interpretation of the balancing exercise is incorrect. It does not mean attaching more weight to one aspect of well-being or weighing them against one another but evaluating and comparing the benefits and dis-benefits of a particular project to well-being.
- 6.871 In her supplementary evidence to the Inquiry it is apparent that the Commissioner has misunderstood the earlier evidence presented to the Inquiry or had been misled. To recap, the actual and recorded oral evidence given by the Commissioner to WG Committee in regard to PPW was that: *"local planning authorities are required to ensure that the economic benefits associated with a proposed development are understood and that these are given equal consideration with social and environmental issues in the decision-making process and should recognise that there will be occasions when the economic benefits will outweigh the social and environmental considerations"*.
- 6.872 It is clear from this that the different aspects of a development are to be given equal weight and that it is the benefits that are to be weighed. Additional weight has not been given to economic considerations but the overall conclusion was that the social, economic and environmental benefits outweigh the environmental disadvantages. It would be unrealistic to interpret the WCFG Act as meaning that the contribution of a particular project to all aspects of well-being should be equal because in practice this situation would be so rare as to rule out most forms of development. In this regard, the Commissioner's definition of balance is wrong and a more appropriate definition would be to assess or weigh up

the different elements involved.

- 6.873 The Commissioner argues that Section 5(2)a of the WBFG 2015 Act, (which refers to the balancing of short-term needs with the need to safeguard the ability to meet long-term needs), requires an approach which actively seeks to give equal weight to different sets of needs. The Commissioner is correct that each aspect of well-being should be given equal weight in terms of assessing the project, but that cannot mean that the decision eventually reached would promote each aspect of well-being to the same degree. It is clear that the benefits of meeting the needs of the present would be substantial and must therefore attract great weight in any argument. In any event, the traffic evidence indicates that congestion would get worse over time if nothing is done and that the scheme would be bound to benefit future generations as well as current generations.
- 6.874 In coming to that view, WG is mindful of the comprehensive mitigation proposals, including the SSSI mitigation strategy which has been agreed with NRW (ID104, ID105, ID154, ID158, ID164, ID205, ID244).
- 6.875 The fifth way of working requires public bodies to consider the contribution to well-being of deploying resources to prevent problems occurring or getting worse. There is a pressing need to take action to address the current problems of the M4 and that was an obvious further factor which needed to be taken into account in accordance with the requirements of the WBFG 2015 Act.
- 6.876 In noting the Commissioner's reference to the *resilient Wales* well-being goal of the WBFG 2015 Act, it is a fact that the Wildlife and Countryside Act 1981 places a duty on WG *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 physiological features by reason of which the site is of special scientific interest*. It is pertinent that that duty is simply not to conserve and enhance but to take *reasonable steps* and therefore the loss of land or other impacts on SSSIs does not necessarily equate to a breach of the legislation requirements. That view was confirmed in the Judicial Review of the scheme brought by Friends of the Earth England, Wales and Northern Ireland Ltd.
- 6.877 It is also noteworthy that Section 61 of the Environment (Wales) Act 2016 requires the authority *to seek to maintain and enhance biodiversity in the exercise of its functions and promote the resilience of ecosystems so far as is consistent with the proper exercise of those functions*. WG has had regard to that duty alongside its responsibilities for the safe and efficient operation of the motorway network and for the Welsh economy. Moreover, the mitigation measures prepared by WG, in consultation and agreement with NRW, are in line with the principles of sustainable management of natural resources. This action is allowed for in the WBFG Act Section 2 which defines sustainable development 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.

- 6.878 It is further noteworthy that the Act does not say that the environment must always outweigh economic, social or cultural considerations but requires a balance to be struck across all elements of well-being and all considerations. That has been done. Reasonable steps have been taken.
- 6.879 Section 9 of the Environment (Wales) Act 2016 imposes a duty on Welsh Ministers to prepare, publish and implement a national natural resources policy. That was undertaken in August 2017 and is linked to the Wales National Transport Strategy and Finance Plan, which is geared at promoting a more sustainable road transport network and a modal shift away from roads to people and freight. That does not mean that road schemes cannot proceed as has been made abundantly clear in a succession of other policies including the Finance Plan which, amongst other published policy documents in Wales, recognises the particular scheme for improving the M4 at Newport. That is entirely consistent with the Minister's duty to keep under review the national system of through roads in Wales and to bring forward plans for improvement of that system if needed (Section 16 of the Highways Act 1980). That proper exercise has been done (ID259).
- 6.880 It is noted that the Commissioner highlights the commitment to take action to enhance the resilience of ecosystems and reverse the decline of biodiversity, arguing that the scheme would seem to directly contradict that policy. She appears to have missed the point, that in recognition of that requirement, WG would create three areas, at Tatton Farm, Maerdy Farm and Caldicot Moor, as part of the SSSI mitigation, all of which have the potential to enhance biodiversity, and it would enlarge reens and include 5.9 km of extra ditch habitat and new landscape planting which would significantly increase the area of woodland habitat.
- 6.881 In accordance with Section 52 of the WCFG Act WG has taken an integrated approach leading to decisions made in the light of the bigger picture and not ignoring the impact that the decision would have on others. To achieve this WG has analysed in depth options for addressing the problems on the M4 as well as all the environmental consequences of building the scheme and the explanation of those consequences and mitigation by expert witnesses. All decisions on the scheme have been made in the light of the bigger picture and in the full knowledge, researched in depth, of the impact of those decisions. The development of the scheme is therefore in accordance with the duties set out under the Act and demonstrates that the benefits it would bring outweigh the community planning policy conflicts.
- 6.882 WG evidence powerfully demonstrates that the needs which the scheme addresses are anything but short-term. They are long-standing problems which are projected to continue into the future and worsen in the absence of the scheme. The scheme is a long-term solution to long-term needs and it is the only solution that has emerged from years of careful

analysis and collaborative endeavour. Suggestions by the Commissioner that WG Inquiry team has not properly considered and applied the new legislation (apparently based on private advice of an objector) were and are wholly unwarranted. One can only assume that the Commissioner did not have the evidence of Mr John Davies and his painstakingly careful assessment of the scheme in the context of the WCFG 2015 Act drawn to her attention before she submitted her letter.

- 6.883 The scheme is designed to meet the pressing needs of the present whilst properly addressing the long-term as part of an integrated transport strategy. The scheme would cause damage to the environment but it would bring substantial environmental benefits as well, and do so in a way that other alternatives would fail to capture.
- 6.884 The contention that the only form of balancing required under the Act is the balancing of short-term needs and long-term detrimental effects is untenable. This is a generic duty laid upon public bodies all of whom operate within an existing statutory framework and many of whom are democratically accountable. The list of matters which must be taken account of in order to act in accordance with the sustainable development principle is not exhaustive nor could it sensibly be. The goals, and the sustainable development definition involve some elements which are potentially in tension and which require the application of informed judgement to resolve. In reaching such a resolution, i.e. striking the balance, the decision-making body looks for an integrated solution, seeks to ensure the needs of the present are met, a duty which may be statutory or democratic without compromising the ability of future generations to meet their needs. The development of a major infrastructure project will give rise to a vast collection of effects across the economic, social, environmental and cultural spheres. Of note, the Act does not say that environmental concerns must always trump economic or social ones or vice versa. Instead, it calls for smart decision-making and action which achieves improvement in all four areas. The evidence amply demonstrates that this scheme would achieve such improvement.
- 6.885 The WCFG Act is explicit in requiring WG to take all reasonable steps in exercising its functions to meet the objectives which it has set. The point is that the actions of the relevant body have to be taken as a whole and should therefore contribute across all the goals and objectives. That does not mean that a particular scheme needs to contribute equally to all the well-being goals. Indeed, such a requirement which the Commissioner seems to think exists is not consistent with the reading of the Act.
- 6.886 The Commissioner in her recent evidence to the Local Government and Communities Committee on 1 March 2018 now appears to recognise the role of balanced judgement in assessing effects under the four elements of well-being under Section 2 of the WCFG Act. It follows that the Commissioner's initial submission and letter to the Inquiry of 13 September 2017 must now be read subject to the later evidence to the Senedd Committee. At the Committee and in replying to a question which

referred to the Inquiry evidence of Mr John Davies, she said:

"well, what the Act says is that public bodies have a duty to undertake sustainable development and sustainable development is defined as the process of improving the social economic environmental and cultural well-being of Wales. I also had legal advice, as you can imagine, and believe that my interpretation of that provision is robust. There have been some interesting ways of looking at that. I think the important word is" improving". So that doesn't mean that if you're going to undertake a particular project or spend a particular amount of money you couldn't have a situation where the economy massively benefits and say the environment only benefits in a minimum away. In my view that sort of decision would be allowed; it would not be contrary to the Act. If, however, you have a decision whereby the economy benefits massively and the environment is massively negatively impacted, so therefore it's not improved, I think that would be contrary to the Act" (ID205).

6.887 In respect of the Commissioner's comments it should be noted that it is not tenable on a fair and comprehensive assessment of the environmental evidence to conclude that the environment would not be improved, especially when one considers the long-term effects of the ecological mitigation measures on the Levels and at Coed Mawr, widespread air quality and noise benefits for thousands of homes in Newport, removal of land contamination and the regeneration of the worn-out parts of Newport Docks. In the Commissioner's own words therefore, the scheme would accord with the Act in the circumstances and the Inspectors are free to recommend confirmation to Ministers that the scheme Orders would satisfy the sustainable development principle.

6.888 The comprehensive evidence in chief of WG, placed on deposit before the start of the Inquiry, on the drafting of the Commissioner's evidence, and explained orally at the Inquiry, covers the answers to the general queries and uncertainties she raised in her written submission. The rebuttal deals in detail with each of the 52 points raised.

Federation of Small Businesses (Wales) (FSB) (O6912)

6.889 The FSB submitted its former consultation response to the M4 corridor proposals, dated 16th of December 2013, as its current but not updated statement of evidence of objection to the scheme.

6.890 The grounds for objection remain as:

- the forecast traffic at the consultation exercise did not present an accurate description of future growth or modal-split or other factors such as wider government infrastructure investment
- in the Newport area the Active Travel (Wales) Act 2013 and the development of the Metro would address congestion and minimise the need for further congestion relieving measures thereby avoiding significant expenditure. The FSB indicated that there would be a reduction in peak traffic of around 20 – 30% and referred to the

Newcastle upon Tyne Metro and Bordeaux tram network experiences

- there is a serious problem on the Newport stretch of the M4 that needs to be addressed but the scheme would not accord with stated policies on sustainable transport whilst the Metro would be better at meeting government criteria on social inclusion, equality, diversity and human rights (PIQ09)
- at £400 million the Blue Route would be cheaper and should have been included in the consultation exercise and WG should re-evaluate the potentially unaffordable scheme within the wider context of transport investment in Wales
- the Eddington review stated that small projects are likely to offer the highest returns whilst larger projects are susceptible, and
- the FSB drew attention to the environmental impact of the scheme particularly on the Gwent Levels and that the options set out in the consultation exercise did not meet the needs of businesses in south-east Wales, while marginalising the problems faced as a result of transport issues elsewhere in Wales.

WG response

6.891 The FSB are fundamentally wrong in their criticism of the traffic forecasting. Modelling guidance states that future year forecasts should be based on the national trip end model growth (NTEM), so allowing local transport models to be developed on a consistent basis. This has been done for the scheme. The forecast takes account of all current trends in some trip rates and the current Department for Transport guidance.

6.892 It is not the function of the NTEM forecasts to consider the potential for modal shift as a result of, for example, major rail investment. The revised traffic forecasting report (CD2.4.13) deals with these points in detail. This includes the effect of modal shift on changing public transport travel costs that might result from, for example, major rail investment. In any case WG has considered the potential impact of investment in public transport, including rail improvements, and has concluded that these would not change the need for the scheme. The traffic model used for the scheme takes full account of the modernisation proposals for public transport in South Wales. Details of this are set out in the updated Public Transport Overview Report, with further information provided in ID/073 (CD 2.4.19).

6.893 FSB are also wrong to claim that the impact of modal shift from the Metro has not been taken account of. It has, and together with all other relevant public transport measures would reduce traffic on the M4 by a maximum of 6%. That would not resolve the current problems on the motorway. The scheme and the Metro schemes are complementary to each other.

- 6.894 The Active Travel (Wales) Act 2013 requires WG and local authorities to improve walking and cycling facilities. Whilst this might have some impact in reducing short distance car journeys on the local network its impact in reducing longer distance movements by cars using the strategic network, including the M4 around Newport, would be negligible. The suggestion that such measures as have been introduced in Tyne & Wear and Bordeaux would result in a 20 – 30% reduction in traffic is irrelevant to the case for the motorway at Newport. If any such reductions were to be achieved they would be on radial routes into an urban area which is the focus of the new Metro scheme but these reductions could not be achieved on a strategic motorway serving long distance movements that have multiple origins and destinations across a wide area.
- 6.895 The Blue Route has been extensively examined before the start of the Inquiry and during it and that has exposed the fact that the public were erroneously advised that the cost of the alternative was much lower than it would be.
- 6.896 The environmental impact of the scheme would have been fully set out in the ES and its Supplements.
- 6.897 The Eddington Report supports the case for investment in transport in general terms and advocates that a 5% reduction in travel time for all business travel on roads would generate around £2.5 billion of cost savings. The report advocates that government should prioritise action on those parts of the road network which are critical in supporting economic growth and where there are clear signals that the networks are not performing. The M4 at Newport is such a critical part of the network and the scheme would be fully in line with the Eddington Report's recommendations in that regard.
- 6.898 The CBI and the South Wales Chamber of Commerce have given evidence to this Inquiry, which suggests that the proposed scheme would meet the needs of Welsh businesses. 59 companies or organisations across a wide range of businesses in South Wales have supported the construction of the scheme. This considerable body of support for the scheme has set out clearly why it is essential to remove an impediment to doing business in Wales due to the high levels of congestion and the resultant uncertain travel time on the M4.

Gwent Ornithological Society (O297)

- 6.899 The Society was formed as the Pontypool Bird Club in 1961 and graduated to the Gwent Ornithological Society in 1974. The Society fully supports the submissions by Gwent Wildlife Trust and other members of the CALM alliance and objects to the scheme because it would:
- be contrary to the WCFG Act 2015 and the Environment (Wales) Act 2016. These Acts seek to promote healthy functioning ecosystems and maintain and enhance biodiversity. The construction of a motorway across habitats that are rare in a Welsh context would

seem to go against the principles enshrined in both these Acts. The natural environment will not be maintained nor enhanced by the proposed development. If a new motorway is necessary then the Blue Route is strongly favoured;

- damage SSSI's and SINCs by subjecting them to road run-off pollution;
- cause the loss of wetland reens, damp grassland habitat and deciduous woodland, including part of the Magor Marsh reserve on Barecroft Common, which would impact on birds and other wildlife and the laws on disturbance to birds including nesting cranes, during the construction and post construction period;
- exacerbate road traffic and contribute negatively to climate change. It is accepted that in mitigation new wildlife habitats would be created or others possibly enhanced but there would inevitably be a net loss of land to tarmac and concrete. The proposed mitigation seems very limited given the area over which impacts will occur. WG accepts that noise and visual disturbance would have a measurable effect on breeding birds over an extensive area. This will be an extensive area of disturbance, which has not been addressed by offering a suitable size of mitigation land away from the road, and

6.900 The works in Newport Docks may impinge on breeding sites for Lesser Black-backed and Herring Gulls. Both species are identified as a conservation priority. Adequate mitigation and avoidance of disturbance would have to be provided as part of the works in the docks.

WG response

6.901 Neither the RSPB nor Gwent Wildlife Trust reserves would be significantly affected by the scheme, although a small area of land owned by GWT would be acquired. Views of the new section of motorway from Magor Marsh Nature Reserve would be screened by the existing woodland and vegetation within and surrounding the nature reserve and residential properties within Magor. The land to be acquired represents only some 3% of the area of the fields purchased by Gwent Wildlife Trust in 2012.

6.902 Consideration of the scheme against the requirements of the WCFG and Environment Acts has been set out elsewhere. The drainage system to be incorporated in the proposed scheme and details of measures to prevent pollution from run-off has also been set out elsewhere and in the environmental information. The value of both habitats and species has been fully taken account of in the environmental statement and information. The ecological impact assessment used standard approaches to predicting impacts on habitats and species and takes account of the conservation value using well-established standard criteria. The ES acknowledges and quantifies the extent of habitat loss that would result from the proposal. To address SSSI habitat losses, mitigation strategies

have been developed in close liaison with NRW, focusing on habitat provision to replace grazing marsh, reens and ditches lost as a result of the proposal. They also incorporate measures to mitigate impacts on several species, including birds highlighted by the society. The proposed mitigation would address loss of habitat as result of the scheme. The effects of disturbance (both visual and noise) on breeding and wintering birds have been taken into consideration as part of the ES.

6.903 The survey referred to by Gwent Ornithological Society was of a wider area than that affected by the Scheme. Lesser Black-backed and Herring Gulls are referred to in the Severn Estuary Ramsar site citation. The SIAA addendum and ESS5 refer to a mixture of adult and juvenile birds of both species being observed during a site visit in July 2017; all in association with existing buildings. The existing buildings on the site would not be demolished and it is not envisaged that there would be any adverse effects on either species as a result of the proposed development. The port mitigation works would be the subject of further consents and environmental impact assessments where issues such as potential disturbance and mitigation measures would be considered.

Royal Society for the Protection of Birds - RSPB (O245)

6.904 The RSPB original letter of objection and any points not referred to in the written submissions still stand. Many of the points are similar to those made by other objectors (such as GWT) and are not repeated here. RSPB objects to the Scheme and has consistently opposed damaging development on the Gwent Levels (GL), including all proposals to route the M4 through the levels. RSPB has managed the Newport Wetlands education and visitor centre since 2008. Newport Wetlands were created as part of the compensation measures for the loss of SSSI as a result of the Cardiff Bay Barrage. RSPB agrees with the other environmental objectors' (e.g. GWT) general or main concerns regarding the impact of the Scheme on the Gwent Levels SSSIs as reported elsewhere. The ES (through NRW) does not describe the current unfavourable condition of the SSSIs. It is essential that this information is provided by NRW so that the baseline prior to the scheme would be known and the proposed management measures to remedy their unfavourable condition assessed. This would enable such remedies to be distinguished from the "mitigation" measures.

6.905 The evidence sets out relevant provisions of: the Wildlife and Countryside Act 1981; the Conservation of Habitats and Species Regulations 2010; the Well-being of Future Generations Act 2016; the Environment (Wales) Act 2015; Planning Policy Wales 9; Technical Advice Notes 5 – Nature Conservation and Planning and 18 – Transport. WG's own legislation and policies proscribe against proceeding with the Scheme, which was devised 25 years ago. A new approach in line with current legislative framework of the WBFG Act and Environment Act is required to solve the congestion problems around Newport. The proposed mitigation does not

and cannot remove the obstacles to the Scheme imposed by the above legislation and policy.¹⁷

- 6.906 Some of the concerns related to bird surveys undertaken on behalf of WG have now been addressed. However, much of the M4 route has not been surveyed in sufficient detail to enable sound conclusions to be reached about the likely ornithological impacts of the Scheme or devise appropriate mitigation and compensation measures.
- 6.907 In 2016, a pair of Common Cranes bred successfully at the Llanwern steelworks. This was the first successful breeding by cranes in Wales since the 1600s. The scheme is likely to result in the permanent displacement of the breeding cranes from the steelworks site. Common cranes have Annex one status under EU directive (2009/147/EC) on the conservation of wild birds. Duties on member states include taking appropriate steps to avoid deterioration of habitats or any disturbances affecting the birds. In this situation conservation of the breeding crane habitats is the best way to achieve this objective i.e. the scheme should not be consented.
- 6.908 The cranes successfully fledged a chick, which indicates that the site has all the critical habitat elements of a favourable breeding location. There is a secure nesting site, extensive foraging areas adjacent to the nest site, a productive wider foraging area, safe roosting pool, and limited human disturbance. The breeding and foraging areas are located close to the line of the scheme and it is very likely that the cranes would abandon the steelworks site. RSPB has considered the suitability of the 3 SSSI mitigation sites but has concluded that the constraints mean that none of these sites would be suitable as compensation for the loss of the steelworks breeding site. It is strongly recommended that a more systematic review of alternative sites across the Gwent Levels and adjacent areas is undertaken.

The impact on Bumblebees and Shrill Carder Bee

- 6.909 The Gwent Levels are home to a good diversity of bumblebee species, with four bumblebee species of principal conservation importance, they are one of the most important bumblebee areas in the UK. Information is provided on the decline of the shrill carder and brown banded carder bees. This area is an important stronghold for these bees and is in fact the joint most important area in Britain for the shrill carder bee.
- 6.910 The survey work with respect to bumblebees was not done over a long enough period and there was no repeat surveying of areas. This is very important as bumblebees tend to forage in different areas at different times of the year depending on the availability of forage plants. The survey was also very limited geographically and did not cover areas to be

¹⁷ The other points made about statutory duties and legal tests repeat the evidence of GWT and are not repeated here.

used for storage of materials for example. The survey and scoping reports appear to be unaware of surveys for the shrill carder bee, undertaken by CCW. This means that it is impossible to have confidence in the conclusions reached. The potential for harming the shrill carder bee population in this (nationally important area for a nationally rare species) has been considerably underestimated.

- 6.911 There will be direct loss of habitat as a result of the scheme footprint, which would represent a significant loss to the species. The new motorway and associated roads are likely to represent significant barriers to the shrill carder and other bumblebee species. Bumblebees treat transport links as barriers on the landscape, and rarely cross them. This combined with the loss of habitat makes it highly likely that the development would represent a near impenetrable barrier to bumblebees, contrary to the overly optimistic WG statement that the road "*would not be likely to prevent exchange of individuals between sites*". The individuals most likely to successfully cross the motorway would be the sterile worker bees and not the Queen and male bees responsible for breeding (and genetic variation). This severance is likely to split the existing shrill carder population on the levels into at least two – North and South of the route or even three – one N. of the route, and one either side of the River Usk South of the new route. This means that the population north of the road are unlikely to survive due to fragmentation and loss of habitat.
- 6.912 A larger ratio of habitat replacement would be required for a site of this quality in order to attempt to replace habitat destroyed and repair the damage inflicted by the severance effect of the road. The three mitigation areas are of reasonable size but it is unclear how much of each would be used for bumblebees. All three sites are South of the route. It is the 10% of the population North of the proposed route that is by far the most likely to be forced to extinction. The proposals do not address this. The planting of motorway embankments and verges with flowers to attract bumblebees increases the risk of collision with traffic, especially important for Queens. BCT recommends that verges are not used as mitigation areas to attract bumblebees for this reason.

Mitigation proposals

- 6.913 The evidence then sets out what is needed in terms of mitigation and compensation for the effects of the scheme. For the common crane, replacement habitat would need to be of sufficient size and quality to encourage the cranes to establish a breeding territory. Information on the elements that would need to be provided as a compensation site is provided. It is essential that sufficient replacement habitat for cranes is available before any impacts at the steelworks occur. This is unlikely given the tight timescale for construction currently proposed by WG.
- 6.914 In terms of Cetti's Warbler, 49 singing males were recorded in the 2016 survey. It is estimated that this equates to 22% of the entire Welsh population, indicating that this is probably the most important site for

these birds in Wales. Given that NRW would like more open reens, this is not particularly suitable for the warblers. Until the vegetation along the replacement reens has been agreed it is consequently not possible to be confident that they would provide suitable habitat. The Cetti's Warbler is likely to use the habitat provided for cranes, and the provision of small willow bushes on the edge of ditches would provide suitable habitat without causing any problems for the cranes.

6.915 Compensation for the effects on Lapwing and wintering birds would be required, although it is impossible to say how much at this stage.

6.916 The concerns regarding the impact on the long-term future of the Shril Carder Bee on the Gwent Levels remain. No separate consideration for them has been undertaken. A draft mitigation and protection plan has been submitted by the objector (December 2017) as a basis for a long-term agreed programme of works to ensure maintenance of the rarest British bumblebee on the Gwent Levels. WG has committed to produce a Bumblebee Mitigation and Protection Plan¹⁸ in association with the RSPB and Bumblebee Conservation Trust, based on the submitted draft. The Bumblebee mitigation plan needs to address: pre-construction baseline surveys, planting proposals and seed mix, use of Tatton Farm mitigation area, protection of the population north of the Scheme and monitoring during and after construction.

6.917 ID 250 sets out the RSPB's final position on the proposed mitigation measures and environmental commitments¹⁹. The document updates progress on discussions between RSPB and WG, including where RSPB concerns have been addressed. Where mitigation measures have yet to be agreed and it is feasible to do so, RSPB will continue to work towards securing appropriate mitigation. The concerns that RSPB had raised in relation to the Register of Environmental Commitments have been largely addressed.

6.918 WG has abandoned plans to create an alternative nesting site for the Crane at Caldicot Moor SSSI mitigation area. The two possible sites being suggested now are one on Tata owned land close to the existing nest site and one on land at the NRW Newport Wetlands Reserve. It is considered essential that the alternative nesting sites are provided prior to the commencement of construction. In relation to the Tata site²⁰, there are significant concerns regarding disturbance from the operation of the motorway and continued availability of the preferred foraging

¹⁸ Commitment 213 in the Environmental Commitments Register

¹⁹ Note: RSPB has engaged with WG on the detail of the proposed mitigation measures on a without prejudice basis to its objection to the Scheme in principle.

²⁰ RSPB provides detailed comments on the suitability of the Tata site and WG detailed responses in ID 250. WG commits to building 2 nesting ponds on the site.

habitat on farmland nearby. WG does not have the power to compel landowners to enter into management agreements with NRW. Little weight can therefore be attached to WG statements related to the use of such legal agreements. The other issue is disturbance from the proposed motorway. The proposed nesting site could be further away from the Scheme than the existing site is from the A4810 dual carriageway. However, the elevation, ambient lighting, noise and visibility of the motorway could be different.

- 6.919 In all these circumstances, RSPB strongly supports the attempts to provide another possible nesting site on land in the ownership of NRW near Newport Wetlands. This site has been visited and is considered to be a potentially suitable nesting and foraging site for the Cranes: with some additional planting, etc. in place. Its provision would be a WG commitment.
- 6.920 An application for a Development of National Significance involving a Solar Farm has been submitted by several landowners near the line of the Scheme. Its impacts should be considered in combination with the Scheme.
- 6.921 The extent of the issues highlighted above lead the RSPB to conclude that the scheme should be rejected.

WG response

- 6.922 In relation to the condition assessments for the Gwent Levels SSSIs, NRW advised that the assessments were still being finalised on the basis of survey information collected over the last few years. Preliminary draft analysis indicates that most features are likely to be classified as unfavourable. Extensive ecological surveys have been carried out for the scheme since 2014 and some are continuing. These have established the baseline conditions for the Scheme regardless of any condition assessment of the wider SSSIs.

The impact of the scheme on rare bumblebees

- 6.923 A survey for bumblebees (in particular, but not exclusively, for shrill carder bee and brown banded carder bee) was carried out in 2015 following discussions with NRW. The results of the survey are reported in the ES. Some of the bumblebees of concern to RSPB i.e. the red shanked carder bee and Moss carder bee were not recorded. The results of previous surveys and the evidence of RSPB has been examined and there has been very limited occurrence of these bees in the vicinity of the scheme. Therefore, no specific attention was given to the species in the ES. However, to the extent that they may be present, then they would benefit from the mitigation which would be delivered within the SSSI mitigation areas, and also the provision of extensive areas of species rich grassland.
- 6.924 The RSPB are concerned about the impact of the proposal on the shrill carder bee meta population in the area, principally as a result of land

take and fragmentation effects. The ES concludes that the impacts on shrill carder bee, taking account of the mitigation proposed and the sympathetic restoration of the construction sites, would be moderate adverse and be significant moderate or large in the medium term. In the long-term, as new and replacement habitat is developed, the magnitude of impacts would be minor adverse and the significance of effects slight or moderate. In EIA terms, taking a precautionary approach, the effects would be significant in the medium and long term. The RSPB concludes that some 10% of the shrill carder bee population at the Eastern end of the scheme should be seen in the context that much of this population is already to the north of the A4810. The remaining population is at Tatton Farm, which forms one of the mitigation areas. However, it is acknowledged that there would be loss of habitat through severance of the levels from former industrial land used by the bees, and hence a conclusion of significant adverse effects.

- 6.925 Concerns were raised that surveys were not undertaken in accordance with appropriate guidance. The limitations of the 2015 terrestrial invertebrate surveys are recognised in the ES. Notwithstanding the limitations outlined, the combination of the study, general surveys across the levels and elsewhere, and specific bumblebee surveys on the levels, all of which were scoped with NRW, is sufficient to establish the value of the site surveyed for invertebrates for the purposes of EIA. The ES outlines the reports of surveys of the Gwent Levels for shrill carder bee provided by NRW. This information is supplemented by the above survey work. The further reports provided by RSPB contain useful additional context but do not make a significant difference regarding the assessment or the mitigation proposals.
- 6.926 The ES recognises that there will be a loss of habitat due to the presence of the new section of motorway, in spite of the extensive provision of species rich grassland and improved habitat in the SSSI mitigation areas. This assessment takes account of the adverse effects on connectivity, as it is accepted that the lack of vegetation within culverts will mean it is less likely that shrill carder bees would cross the motorway. However, this does not mean that these will not be able to cross the road at all. It is not accepted that the populations north and south of the road would be completely isolated from one another. The recreation of ditch side habitat along new reens, the sowing of wildflower mixes on the south facing verges, the creation of species rich grasslands and the ability of bees to cross the road (albeit less frequently and less safely) and thus maintain genetic interchange would significantly offset the adverse effects of the road and ensure that this SSSI feature is maintained.
- 6.927 The point regarding the loss of habitat at Newport docks, Great Pencarn and Tata steel are refuted as follows. The elevated section of motorway and new bridge across Newport docks and the River Usk will not result in any significant increase in any barrier effect to the River Usk corridor. Bees will be able to fly beneath the road and the approach viaducts and areas of open ground will remain within the docks. There will be additional land take during the construction period, which would have

significant adverse effects on the shrill carder bee. Nevertheless, sufficiently large areas of suitable habitat at these locations will be retained during construction and post-construction to maintain bee populations. The submission states that the restoration of the construction sites is to be welcomed and advice will be sought from Bumblebee Conservation Trust regarding seed mixes to be used in the restoration.

- 6.928 The reasons for the habitat replacement ratio of reens and ditches have been set out previously. With regard to the SSSI mitigation areas, the ratios for arable reversion and grassland enhancement were both agreed with NRW and would see a very significant increase in the amount of flower rich habitat for bumblebees. The proposed Tatton Farm mitigation area is to the north of the scheme and will therefore serve to mitigate for any impacts to the bee populations north of the proposed motorway. This will offset some of the severance issues. RSPB have recognised the potential value of the Caldicot Moor SSSI mitigation area. The creation of reens with species rich bankside habitat, would significantly increase the value of the Eastern end of the scheme for shrill carder bee. The banks of the reens and ditches would be managed as part of the Gwent Levels SSSIs.
- 6.929 The promoter can only directly control management of habitats associated with the new section of motorway and the SSSI mitigation areas. The mitigation measures that would be taken have been explained above. It is also likely that woodland edge habitat alongside the new proposed woodland planting areas across the scheme would provide foraging opportunities for bumblebees. Some of the proposed opening up of scrubby woodland areas at either end of the scheme and on land at Tata steel, to enhance this habitat for dormice is also likely to have some beneficial effect for bumblebees. The detailed measures suggested by the BCT as necessary would be controlled under the environmental, landscape and the ecology after-care plan as part of the register of environmental commitments.

The Impact on birds

- 6.930 It is recognised that the proposal would destroy habitat used by the Common Crane, an Annex 1 Species, which bred on the levels in 2016 for the first time in Wales for 400 years. The same pair of cranes has returned to the same nesting site in 2017. The impact of the proposal on the Common Crane is assessed in the ES supplement of December 2016 as having a moderate or large adverse effect and therefore significant in EIA terms. The proposed route would bisect the Crane's nesting and feeding areas, making it impossible for the birds to return to the previously used site. The creation of alternative nesting and foraging habitat was therefore considered in the SSSI mitigation strategy. Specifically, the creation of an alternative nesting pool and associated habitat was proposed at Caldicot Moor. Following discussion with RSPB, it was accepted that this site would not be suitable. It is not considered likely that a special protection area would be designated for a single

Common Crane nesting site, no matter how rare this is in Wales. Neither WG nor NRW is aware of any such designation proposals.

- 6.931 It is illegal to disturb nesting Cranes or their young and this would be fully complied with, irrespective of buffer distances that may be agreed. This would be the responsibility of the ecological clerks of works. Environmental commitment no. 215 binds WG to commencing certain mitigation works as early as practicable. The pond creation for Crane mitigation will be implemented at the very earliest opportunity in the construction programme. Whilst the mitigation for the Scheme would be limited to the requirement to provide an alternative nest location with access to suitable foraging habitat, WG has worked with RSPB, NRW and Tata Steel to locate alternative nesting sites that could be provided. The outcome of this lengthy process is that two sites have been identified: one near the existing nest site (owned by Tata) and one at Newport Wetlands Reserve (owned by NRW)
- 6.932 The Tata site has been included in the CPO for the Scheme (by agreement with the landowner and those with an interest in the land) [ID 243]. There would also be sufficient foraging for young chicks within the site. Foraging further afield is a wider issue as the land is not in public ownership – this applies to the current nest site in any event. WG was merely highlighting that NRW has the power to enter into agreements with willing landowners. It is important to note that the existing nest site is on operational land which has maintenance tracks and vehicles passing immediately next to the nesting pond. The site is around 120 m to the north of the A4810, which clearly did not deter the cranes from nesting. Some of these activities at the current nest site are screened by hedgerows or other vegetation, so screening would similarly be provided at the proposed sites. It is important to note that the screening of the A4810 is not continuous, and lorries and industrial buildings can be seen from the nesting lagoon. The elevation of the motorway would be around 1.5 – 2m at this location. There would be no increase in ambient light at this distance, as the motorway would not be lit.
- 6.933 WG is fully committed to support the creation of an additional Crane mitigation area at Newport Wetlands and welcomes RSPB's acknowledgment of the potential suitability of the site. The fact that RSPB are prepared to work with NRW and other specialists to ensure that the necessary habitats are designed and implemented is also welcomed.
- 6.934 The RSPB raised concerns that the breeding bird surveys focused on identifying representative bird communities of the survey areas chosen, rather than properly assessing the bird populations affected along the route. The breeding bird survey methods were agreed with NRW, WG statutory consultee on natural heritage. The repeated studies, data searches, and field surveys therefore resulted in a robust baseline from which to assess the scheme's impacts on breeding birds, predict significant effects and design appropriate mitigation. Additional surveys were carried out during the 2017 breeding season. This includes targeted breeding bird surveys of Cetti's Warbler, Barn Owl, Common Crane and

Lapwing. This data would be used in conjunction with the baseline information in order to identify and minimise any impact on breeding birds during the construction process. All breeding bird data will be collated and included in a finalised version of the bird protection and mitigation plan. The requirement to finalise this plan prior to construction will be included on the commitments register. WG will also collate and provide the accumulated bird data from all the surveys and previous associated schemes; this will be made available to RSPB through submission to the South East Wales Biodiversity Records Centre.

- 6.935 The approach to surveying breeding birds was taken following NRW advice. NRW has accepted that the data provided forms a suitable basis from which to make a robust assessment of the proposed scheme on breeding and wintering birds.
- 6.936 Concerns have been raised that the proposal would also destroy critical habitat for a number of priority species, including Lapwing. The SSSI mitigation strategy would include proposals for habitat management at Mardy Farm and Tatton Farm, which would provide beneficial habitat for breeding Lapwing
- 6.937 It is considered that the value ascribed to Mallard and Shoveller has been correctly derived based on the limited numbers and/or highly likely success of mitigation measures for these species. Similarly, whatever the estimation method for the population of Cetti's Warbler, the value assigned in the ES to that population along the proposed route is national (high), reflecting the fact that it may represent in the region of 22% of the Welsh population. The importance of the area for this species has therefore been taken account of in the assessment. Mitigation proposed for Caldicot Moor is also compatible with Cetti's Warbler. Careful consideration would also be given during the implementation of the SSSI and reed mitigation strategies so that any hedge removal (to reduce shading of reeds) is carried out on a rotational basis, to ensure that Cetti's Warbler habitat was not severely compromised.
- 6.938 The concerns of RSPB in relation to the proposed Barn Owl mitigation have been addressed. Barn Owl boxes included as part of the mitigation for this species would only be provided if suitable receptor locations could be identified that are in excess of 3 km from the proposed route. This is to minimise the risk of collisions of nesting and fledged barn owls with motorway traffic. This would be included in the bird mitigation and protection plan that would be agreed with NRW prior to commencement of construction.
- 6.939 WG provided explanations for the variance in the numbers of Song Thrush, which was due to the different extent of survey coverage over the years. The result of the survey in terms of the numbers of Willow Tits in the area was explained by a mistake in coding by fieldworkers. The result of this correction is that there was an absence of Willow Tits in 2016 and 2017, and it can be concluded that the Tata site is currently of limited value for this species and so the proposed scheme will have no

significant impact on this species.

- 6.940 The overall mitigation strategy for the Scheme is designed to be holistic, to maintain and enhance biodiversity and to promote the resilience of ecosystems to the maximum extent possible consistent with WG functions for the motorway network and the economy. A full and comprehensive package of mitigation measures to address the impacts on the Gwent Levels and protected species have been or would be developed. The implementation of these measures is provided for in a full and comprehensive range of environmental commitments and would be overseen by ecological clerks of works.
- 6.941 The wintering bird surveys have been comprehensive in order to inform the ES and its supplements, the SIAA and Addendums, and the Bird Protection and Mitigation Plan (BPMP). An appropriate level of detail has been provided to inform this stage of the process. In the case of bumble bees, this has been provided by RSPB/BCT in the form of a draft mitigation plan. There are clear commitments to develop the details in consultation with the relevant stakeholders including RSPB/BCT. This would include provision for the Shrill Carder Bee at Tatton Farm.
- 6.942 It is agreed that the cumulative impacts of a proposed solar farm close to the route of the Scheme need to be considered, notably in relation to Cranes. Ornithological records have been shared with the ecologists for the solar farm. Whilst the current application submitted in July 2017 was not considered in the ESS of September 2016, similar proposals that covered a similar area were considered in the cumulative assessment of the Scheme.

Ms Jenny Rathbone AM and Mr Steve Howell (O6906)

- 6.943 A new approach to transport planning should apply to Wales with consistent evaluation techniques applied to all projects, allowing multimodal and integrated ideas to be assessed objectively and compared with each other. In the case of the M4 issue it is accepted that a fully formed alternative strategy for tackling road congestion and improving productivity across the Capital City Region would be complex and could not be advocated at this stage, but the foundations of such a strategy should include:
- prioritising the Metro and advancing the case for a light rail link from Magor to Cardiff;
 - encouraging car sharing;
 - completing the A465 Heads of the Valleys road which would have some potential for the diversion of long distance traffic away from the congested area of the M4;
 - investing in road improvements that facilitate more use of the rail and metro systems, and

- increasing cycling, walking and running to work.

6.944 The proposed scheme is flawed and should be abandoned because:

- in times of financial constraint, a proper comparative evaluation of transport investment is important but no such evaluation seems to have been undertaken;
- it would move congestion at Brynglas to other locations;
- it would produce a modal shift away from public transport and induce car-traffic growth and therefore make it harder to meet climate change goals;
- the stated 1% reduction in carbon emission fails to take account of emissions which would arise from the increases in traffic which would be induced by the scheme on other parts of the road system, for example at bottlenecks in Cardiff;
- a similar investment in rail could carry 8 – 20 times more people and should be favoured even if improved public transport services could reduce limited traffic on the M4;
- the scheme would reduce economic resilience and threaten the Central Cardiff Business Zone;
- figures indicate that most of those joining the motorway at Newport are travelling to Cardiff and back and that delays in Cardiff are greater than on the M4 at Newport;
- ongoing growth and development in Cardiff would be put at risk by the reliance on one mode of transport, especially for travel to work;
- the scheme would impede health improvement goals;
- the scheme would starve other projects of money and would use up the entire borrowing facility available to Wales. In this regard, it should be noted that the Metro has only secured a relatively small allocation of funding. Even if the scheme had a good cost benefit outcome, locking up funds for other projects would negate the overall cost benefit position for Wales;
- the scheme would exacerbate social exclusion because more than a quarter of households in the region do not have access to a car;
- the Environment (Wales) Act places a duty on Ministers to cut net emissions by at least 80% by 2050. The scheme would have a negligible effect on reducing carbon emissions in the Newport area but it may increase car bound commuters who would be delayed in the bottlenecks of Cardiff, thereby increasing emissions overall, and

- the Future Generations Commissioner for Wales has criticised the scheme which would not meet the well-being goals set out in the 2015 Act.

WG response

- 6.945 The degree to which the scheme complies with the WCFG 2015 Act is set out in the evidence in chief together with the background, aims, objectives and possible solutions to the recognised problem on the M4. The scheme has been developed following widespread consultation with Cardiff Council. With the scheme operational the average daily traffic levels on the A48M would rise by 2% in 2022 and 5% in 2037 compared to the situation which would exist without the scheme. The current problems being experienced on the A48M are not expected to change materially because of the increases.
- 6.946 The scheme would be carbon neutral compared to the do-minimum scenario and therefore the scheme would not hinder the efforts of WG aimed at achieving climate change targets.
- 6.947 The scheme is supported across South Wales with 199 unique pieces of correspondence clearly expressing support for the road-based solution to the M4 problem. It would improve accessibility for car users and public transport users alike and would provide walking, cycling and equestrian improvements. It would benefit the economy, public transport by reducing delays on the M4 and in Newport and help attract investment into Wales thereby benefiting social inclusion.
- 6.948 Funding for the scheme has been explicitly identified and provision set aside within WG's published capital plans for the next four years. Allocations are not made beyond a four-year period but suitable forecasts are in place to enable assurance to be given that the full funding requirement associated with the project is available within a reasonable timescale should the decision to proceed be taken. The project would be funded through a combination of UK Government borrowing and WG transport capital budgets. The whole of the borrowing capacity would not be taken up by the scheme. The balance of the current borrowing limit over £500 million would be available to fund other schemes elsewhere from 2018/19 onwards. The distribution of government budgets is not a matter for consideration at Public Local Inquiry's into specific schemes.
- 6.949 It is accepted that the number of vehicle kilometres driven within the study area would increase as a result of the scheme but these increases would be no more than 1% of the background traffic growth that would occur irrespective of the scheme. The increase in carbon emissions from the extra mileage driven (from the induced traffic) would be more than offset by the reduction in carbon emissions result from the improvement in traffic flow and the eradication of the stop-start conditions that are prevalent and obvious at Newport throughout the working week. The scheme, in operation, would offer a net carbon saving.

6.950 The proposed and identifiable improvements to public transport would have a minimal effect in terms of reducing traffic on the M4. These and other local public transport improvements have been taken into account in the assessment of the scheme which shows that, in total, they would only remove a maximum of 6% of the motorway flow. That would not resolve the problem on the M4. It is wrong to assert that traffic using the M4 in the evening peak hour is local. The traffic model indicates that 55% is from the Severn Crossings with another 15% from Gloucestershire and the M50 (Midlands). None of it is from Newport city centre and hence a modern public transport system local to Newport would only have a limited impact on the M4.

Mr Laurence Lowe (O154)

6.951 The scheme would have a significant, disproportionate and negative impact on communities, the environment and Wales as a whole. The need, based on unreliable traffic predictions, is challenged. It should be reconsidered whilst practical measures to ease traffic flow and congestion on the existing M4 are implemented, including a prevention of lane-jumping at J25A, enhanced and appropriate signing and greater use of the SDR from J23A. The congestion on the A48M would be exacerbated by the Scheme.

6.952 The decision to proceed with the scheme was taken on a narrow basis following an inadequate, vague and limited consultation and other options should be considered, if necessary at a Public Inquiry. Members of the public did not appreciate all the implications which would be involved in the construction of the scheme, for example, the need to haul stone from the Ifton Quarry over a period of three years and the details of noise and air pollution.

6.953 The scheme would damage the environment and leave a poor legacy for future generations. In this sense, it is in conflict with the WCFG 2015 Act. The relationship between the scheme and current public transport projects such as the Metro is not clear and a greater emphasis should be placed on a fully integrated transport solution. That review is necessary because the cost of the scheme would remove the necessary finance from other major infrastructure projects. The Blue Route should be progressed as an alternative.

6.954 The damaging CPO would remove land from the Gwent Wildlife Trust nature reserve at Magor Marsh, which is the last relatively natural area of fenland on the Gwent Levels. The CPO would leave areas fragmented and irreversibly damaged. The heart of the Gwent Levels and its five SSSI areas, which are both naturally and internationally important, would suffer and biodiversity, agriculture, small businesses and local tourism would be harmed. The loss of the complex series of reens and ecosystems could not be adequately replaced and the quiet enjoyment of the area would be lost.

WG response

- 6.955 The case for the scheme and its public benefits is set out in the evidence-in-chief of WG. The case has had regard to the public transport network including the Great Western route modernisation and electrification of the main line from London to Cardiff, opening of new stations on the Valley lines (Metro phase I) and Valley line electrification (Metro phase 2). Further rail elements of the South Wales Metro, a strategic park-and-ride site at Llanwern (Metro phase 3) together with the Newport bus rapid-transit scheme have been assessed to determine whether they would weaken the case for the scheme by reducing traffic flows on the existing M4 corridor. The results of this analysis have shown that traffic flows on the M4 would be reduced by a maximum of 6%, thereby proving that all the public transport initiatives would not resolve the existing problems let alone future problems on the M4. Public transport is seen as complementary to the scheme and not in competition with it. The scheme is the long-term sustainable solution to the series of problems experienced on the M4 around Newport and in association with the proposals for the South Wales Metro forms a vital part of the Government's vision for an efficient and integrated transport network for Wales.
- 6.956 Wide-ranging public engagement informing the development of the scheme has been ongoing since the early 1990s. Significant efforts were made to help people with an interest in the proposals, understand the available information and address their queries appropriately. A 2015 analysis of public feedback showed that 90% tended to agree or strongly agree that the exhibitions helped them to understand the proposals. 92% confirmed that they had found the information on display adequate.
- 6.957 All matters of noise, vibration and air pollution have been set out clearly in the ES and its Supplements.
- 6.958 Should the scheme proceed the balance between economic, environmental, social and cultural impacts would be in line with the goals of the WCFG 2015 Act. However, it is accepted that the scheme and its operation would have an adverse effect on the Gwent Levels, the details of which are set out in the ES and its Supplements. The scheme has been designed to minimise noise effects whilst not resulting in another unacceptable environmental effect. Notwithstanding that, it is accepted that parts of the Newport wetlands would suffer a significant adverse effect which would be unavoidable even though the wetlands are located a substantial distance away from the proposed road. On balance, the scheme would result in a considerably greater number of properties experiencing reduced, rather than increased, noise. Much of the Levels are already characterised by industrial, agricultural and road traffic noise and are not currently undisturbed by anthropic sources. Five new public right of way and one new public footpath would be created across the Levels and one off-road cycle link would be constructed.
- 6.959 It is accepted that average daily traffic levels on the A48M would increase by about 2% in 2022 and 5% in 2037 compared to the situation without the scheme. That level of increase in traffic would not materially affect

operational problems on the A48M.

- 6.960 The traffic case for the scheme is set out in the evidence-in-chief, with the latest traffic count data proving strong traffic growth through the period 2013 – 2016.
- 6.961 The project would be funded through a combination of UK Government borrowing and WG transport capital budgets. The full amount of WG borrowing capacity would not be allocated to the scheme. The balance of the current borrowing limit over £500 million would be available to fund schemes in other parts of Wales from 2018/19 onwards.
- 6.962 The Newport wetlands, the RSPB reserve, nor the Magor Marsh meadows (Gwent Wildlife Trust nature reserve) would be significantly affected, although a small area of land owned by the Trust would be acquired. The nature reserve would be screened by existing woodland and vegetation within and surrounding the reserve. This nature reserve is not remote from the existing motorway network, which forms part of its current environmental context. The CPO includes 3,395 m² (0.34 ha) at the extreme northern corner of this land which would account for about 3% of the total area of 11.3 ha, which the Gwent Wildlife Trust purchased in 2012, in the full knowledge of the proposed M4.
- 6.963 About 125 ha of land within the Gwent Levels SSSIs would be affected by the scheme, of which 86 ha would be grazing marsh. The measurement of land take for the scheme includes the areas necessary for the construction of new reens and ditches. Extensive planting and habitat establishment would be undertaken which would be of benefit to all wildlife, not just those species addressed in the ES. The ecological surveys carried out to inform the ES have been extensive and have considered those species which are the most important in the context of the scheme, both in terms of their conservation status and susceptibility to adverse impacts resulting from the scheme, and for which specific mitigation measures would be required. Existing arable land would be converted to grassland, thereby reducing chemical pollution in the reens, and existing grassland habitats would be enhanced. A five-year after-care period would be maintained.

Mrs Ann Kenny (0096)

- 6.964 Mrs Kenny lives on the north-western edge of Magor, close to the existing M4 and the proposed route. The objection refers to there being no need for the Scheme and the excessive cost. The motorway is only busy at peak times. The blue route and public transport improvements should be favoured. The concerns expressed by other objectors about the damage to the Gwent Levels and future generations are supported. The Scheme would add significantly to noise and pollution, dust etc. caused by the existing M4, A4810 and B4245. The impacts of construction in terms of noise, disturbance, dust and pollution were not explained at the public exhibitions. Despite attending several public exhibitions in 2015/16, she did not know that there would be a haul road and bund next to her house

in use 6 days a week for 3½ years until a site visit by the Inspectors during the Inquiry. She explains that time was given to her by WG at the Inquiry to answer her queries. Mrs Kenny also queried two matters in relation to WG's air quality evidence: the location of the lightly populated areas referred to; and secondly that there would not be such air quality benefits because of tighter future controls on emissions (PIQs 72, 73 & 85).

WG response

- 6.965 Mrs Kenny was informed of the haul road north-west of Magor at the March 2016 Draft Orders Exhibitions in Magor. The project team agreed to set out the line of the Scheme to the rear of her property and this was completed in April 2016. A typical cross-section was also supplied to the objector at that time. Further information was also provided in the ES update of December 2016. A drawing showing the proposed Scheme, haul road, bund and landscaping was provided at the site visit on 25 April 2017. Details of the relationship of the Scheme to the objector's dwelling are provided in PIQ 85. The haul road is necessary to get stone from the quarry to the east to the route of the Scheme. Once the road-line has progressed the haul route will be moved further away to the line of the Scheme.
- 6.966 The air quality points are: the sparsely populated areas are on the route through the Gwent Levels. There would be decreases in pollutants with future higher standards, which have been taken account of in the analysis. However, the evidence shows that there would still be a reduction in pollution concentrations at a large number of residential properties. This is a beneficial effect of the Scheme (PIQ 73).

Councillor Brian Mills (O6907)

- 6.967 Councillor Mills is opposed to the scheme because of its irreversible adverse effect on the Gwent Levels, their character, ancient landscape and wildlife and he doubts the cost estimate. In his view the scheme is not sustainable and greener transport options should be pursued in order to reduce car traffic. The scheme would contradict the 2015 Act. As an alternative, the Blue Route (alternative 1) would be cheaper and take less time to build. The estimated cost of the scheme appears highly optimistic and it is not clear whether ground investigation has taken place.

WG response

- 6.968 The effect of building and operating the proposed scheme on the environment is set out in the ES and its Supplements which clearly acknowledge the importance of the Gwent Levels and identify the magnitude and significance of effects on a wide range of environmental features and access. The scheme would be in accordance with the WCFG 2015 Act and would be a sustainable development. PPW recognises that

conservation must be balanced against the economic, social and recreational needs of local communities and visitors. The wider economic needs of local businesses and communities must also be considered. The scheme has been designed to minimise noise but it is accepted that for some areas there would be significant adverse effects. Overall the scheme results in a considerably greater noise benefit than dis-benefit.

6.969 The suggested Blue Route would not address the problems or achieve the objectives of the scheme. It is expensive and could not be built as quickly as the scheme.

6.970 Councillor Mills is concerned that the accuracy of the proposed scheme's costs is not backed up with any substantive evidence but the Inquiry has been appraised of the advantages of the early contractor involvement in the project and the extensive and thorough survey (including ground investigation) works which have been undertaken to reduce risks.

Mr Tom Chinnick (O335)

6.971 The problem of congestion on the M4 is accepted but the scheme, or any road-based solution, should not proceed because it/they would:

- offend long-term sustainability in respect of carbon and climate change which, if unabated, would precipitate the mass migration of people;
- contribute to CO2 emissions in order to save 9 minutes from a single journey;
- adversely affect one of Wales' most important SSSI areas, thriving wildlife and ecosystems, which are based on the complex array of reens and ditches that perform an important service in terms of containing flooding, and
- frustrate other alternatives such as a metro service which could efficiently serve the densely-packed populations surrounding Newport and Cardiff and should proceed instead.

WG response

6.972 The scheme would be a sustainable solution to the current and future problems of congestion on the M4. It would not hinder the achievement of emission reduction targets required by the Environment (Wales) Act 2016. It would be constructed along the only route requiring land within the Gwent Levels which is reasonable and would meet the objectives set for the scheme and relieve the problems on the M4 around Newport. The effect of the scheme on the Gwent Levels as a whole, and the ecosystems in particular, has been set out in the ES. No flooding would be caused by the scheme, but, in increasing the available capacity of the reen and ditch system, it would be marginally beneficial to the area as a whole.

Mr Benjamin Potts-Johnson (O6917)

- 6.973 The primary causes of traffic congestion at the Brynglas Tunnels are inadequate lighting in the tunnels, the close proximity of junctions 25 to 28 and the disruptive local traffic using the motorway for short stretches. A secondary cause arises from vehicles using the filter lane to pass traffic on the left before re-joining the main through lanes, coupled with the changes in speed limits. This is evidenced by the fact that congestion in the immediate proximity to the tunnels is worse on sunny afternoons. Proper lighting would obviate that.
- 6.974 A solution would be to use lane 1 as a continuous filter lane for multiple junctions between J24 and J28 westbound and J29 and the Tunnel eastbound, with through traffic directed to use lane 2 or 3, coupled with a closure of the entry slip at J26 eastbound to all but emergency vehicles. That would enable a flow rate of 7,200 vehicles per hour in each direction to pass through the tunnels without causing congestion. That is greater than current demand. A permanent 60 mph speed limit should be imposed on the motorway rather than a variable speed system.
- 6.975 A part-solution would be to draw local traffic away from the motorway by creating a new railway station on the existing line at Ebbw Junction and reconstructing the railway line between Pye Corner and Caerphilly. The saving in capital expenditure could be used for the South Wales Metro which would contribute to sustainable transportation. Every pound spent on unnecessary new motorway would make the Metro less likely to be built.
- 6.976 The local measures outlined above would cost a total of about £10 million and would resolve the congestion problem in the short-term.

WG response

- 6.977 During the preparation of the scheme more than 100 possible measures were considered including network improvements, travel planning, demand management and alternative modes of transport. These considered:
- works to the Brynglas Tunnels,
 - the closure of M4 junctions between J25 and J28,
 - works between J25 and J28, and
 - traffic management along the M4 around Newport.
- 6.978 All were rejected in favour of a new section of motorway to the south of Newport which would best address the problems and achieve the set objectives. WG has reasonably and lawfully considered alternatives to the scheme.
- 6.979 There is no evidence to show that congestion is worse on sunny

afternoons. Peak hour traffic and delays are a common occurrence. Future traffic growth would exacerbate the problem. The most heavily trafficked section of the M4 around Newport is between junctions 27 and 29. Congestion with frequent incidents is currently a very common occurrence between the tunnels and J29 where traffic flows are already approaching peak hour capacity that indicates that the problem of congestion is worse on the M4 sections west of the tunnels at peak times and during incidents.

- 6.980 The report on local traffic on the M4 around Newport (PIQ86) explains how 22% of traffic joining or leaving the M4 at J27 in the do-minimum scenario has both its origin and destination within Newport.
- 6.981 The variable speed limit system has improved accident rates on the M4 but does not resolve the capacity, resilience or safety problems associated with horizontal and vertical alignment issues. Neither do they address the many lane-gain and lane-drop issues along the route. A permanent 60 mph speed limit on the motorway would not address the capacity, resilience or safety problems associated with it.
- 6.982 The combined effect of the public transport measures being suggested for South Wales would be to reduce the M4 traffic by a maximum of 6% which would not resolve the problems on the motorway, the statistic that underlines the justification in WG's position of promoting the M4 and Metro schemes as being complementary to each other.

Mr Phil James (06920)

- 6.983 The scheme may not be needed. The M4 is controlled over the length from J24 to J28 by variable message speed signs but outside that area there are no signs and there are no queues. The safety benefits of the system are unclear. The speed controlling traffic management system should be switched off for a trial period and monitored. The exercise may save over £1bn.

WG response

- 6.984 The system is activated because of congestion and is not the cause of congestion. The Variable Message Signing system (VMS) on the M4 uses sensors in the road to detect the start of congestion. When that happens a reduced mandatory speed-limit is automatically activated and adjusted to keep traffic flowing. In other words, the system is activated by the build-up to congestion and is not the cause of the congestion. Studies have shown that it is effective in aiding flow during the onset to congestion and in the recovery from congestion. However, it is accepted that it does not prevent congestion because the volume of traffic using the motorway is excessive relative to its carrying capacity. Since the installation of the system the accident rate on the M4 has reduced. Despite that improvement it is accepted that the motorway around Newport still has an accident rate that is higher than a typical motorway because the M4 does not meet modern standards.

6.985 Traffic conditions on the M4 following the installation of the VMS have improved but are still unacceptable. These problems would grow unless the motorway is relieved. Removing the variable message speed system would make current problems worse again rather than the reverse.

Mr John Robertson (O6914)

6.986 The scheme would destroy the SSSIs on the Gwent Levels and the habitat of many species, including the re-established Common Cranes which have recently bred on the Levels for the first time in 400 years. As an alternative, money should be spent on improving railways and subsidising rail freight.

WG response

6.987 The need for the scheme is set out in the evidence-in-chief of WG and the effect of constructing and operating the proposed motorway on the environment is set out in the ES and its Supplements. These documents clearly identify the magnitude and significance of effects on a wide range of environmental features and assets, including the impact on the Gwent Levels.

6.988 The issue of how WG spends money is outside the scope of the Inquiry. However, the scheme has taken account of the planned mainline rail electrification, the committed elements of the Metro and has carried out sensitivity testing on the higher level of Metro investment and Newport Rapid Transport. The results show that the combined effect of those public transport schemes would reduce traffic on the M4 by a maximum of 6% and would therefore not resolve its problems.

6.989 The impact of the land-take and the operation of the motorway on the Common Cranes' nesting area is considered in the December 2016 ES Supplement. That would be significant and therefore an alternative nesting pool and associated habitat would be created at Caldicot Moor.

Vivien Mitchell (O142)

6.990 The objector, expressed concerns about the compulsory purchase of Magor Marsh, the duration of the consultation period, and WG's commitment to reducing the impact on climate change and protecting wildlife. The objector wanted account taken of previous advice including that to the Environment and Sustainability Committee and the advocated use of public transport, cycle routes and car-share schemes as alternatives, together with the construction of the Blue Route.

WG response

6.991 There would be no compulsory purchase of land from the Magor Marsh SSSI. The Blue Route, when assessed, performed poorly compared to the published scheme and would not offer a sufficient long-term solution to the identified problems of the M4. Measures to improve public transport, cycle routes and other initiatives were assessed following public

consultation between 2010 and 2013 but all were rejected as being inadequate to solve the problem of the M4. Full account has been taken of the evidence presented to the Environment and Sustainability Committee. Welsh Ministers would continue to honour their commitments to international environmental conventions via the UK Government. The impact on carbon generation during construction is acknowledged even though great attention has been paid to minimising levels. The South Wales road network contributes about 4.3% of the total carbon emissions in Wales but, with the scheme constructed, the total user carbon emissions on the South Wales network would reduce even though the number of vehicle trips would increase because the scheme would be shorter than the existing road and eradicate stop-start traffic. Standard periods were used for the objection period following the publication of the draft Schemes and Orders.

Ms Linda Guppy (0004)

- 6.992 Ms Guppy expressed concerns about the increased traffic volumes on the B4245, the advantages of a new link road from the M4/M48 and B4245 to the Severn Tunnel Junction station, the visual impact of the new road on the residents of Llanfihangel Rogiet, the acquisition of farmland there and the potential of the scheme to increase noise, light and air pollution around Rogiet.

WG response

- 6.993 Traffic volumes would reduce on the B4245 through Magor and east of Caldicot but would increase from Caldicot to Rogiet. Such increases would not threaten the carrying capacity of the road. It is accepted that there would be advantages in a direct link road from the motorways via the B4245 and on to the Severn Tunnel Junction station but these are local matters for the Monmouthshire County Council to deal with. All the land included in the compulsory purchase order is required for the scheme. It is accepted that during construction and operation of the motorway there would be a significant adverse visual impact on parts of the Gwent Levels and that would also apply near Llanfihangel Rogiet.

Ms Catherine Grady (O6918)

- 6.994 The scheme would remove business traffic from Newport and its design at Castleton and Magor should be reconsidered. Alternative 19 should be more fully explored instead. This could best be done by increasing the number of tunnels at Brynglas to 4, each taking two lanes of traffic. The advocated closure of J27 by objectors should be resisted because that would force traffic along Forge Lane, all the way back to back to Machen and Rogerstone in order to access the M4 via J28. The villages around would be adversely affected. Signposting to the docks should be improved at the Magor junction and reconsideration given to the location of it. Road traffic noise is a real issue that affects health and, in that regard, the scheme would run too close to expanding residential areas.

WG response

- 6.995 There is no need to redesign the Magor and Castleton junctions because drivers would have the option of using either the new or existing motorways depending on their journey or network conditions. By providing a new motorway to the south of Newport strategic traffic would make their journeys on a modern road while local traffic could continue to use the reclassified M4 around Newport. The motorway would benefit from the intermediate junctions at Newport Docks Way and Glan Llyn from which access to the city could be gained. The existing and proposed variable message signs would help inform drivers with advanced information about incidents or delays so that they can use alternative routes.
- 6.996 A full appraisal of Alternative 19 demonstrated that it would not provide sufficient capacity in the longer-term and congestion would remain at peak times particularly between J25 and J24. It would have adverse impacts on noise levels, air-quality and emissions to the north of Newport and would require the demolition of properties. The objector's variation on that alternative would provide similar benefits and costs but the most heavily trafficked section of the M4, to the west of the tunnels would not be sufficiently relieved. The cost of the alternative would be considered greater than that of Alternative 19, and the BCR would be no better than 0.17, which is very poor value for money.
- 6.997 WG agrees with Ms Grady that the closure of J27 would have severe widespread adverse impacts on the local network, people and villages. It is accepted that traffic on motorways creates undesirable noise consequences but the scheme would include noise prevention barriers where appropriate, including those areas near residential areas.

Mr John Evans (O6908)

- 6.998 Whilst the scheme is strongly supported in principle it should be improved by the incorporation of a link from the M48 to the B4245 and to the Severn Tunnel Junction park-and-ride area. That would reduce eastbound traffic on the B4245 and traffic using the present M4 at J23A by rerouting the scheme from J23 around the north of Magor and Undy, crossing the existing M4 to the west of J23 because that would have the advantage of retaining easy access to the motorway service area, industry and the A4810 at the existing M4 J23A.

WG response

- 6.999 The scheme would provide the desired connection between the B4245, M48 and the motorway network at J23, thereby improving local accessibility, including that to the Severn Tunnel railway station. The design was arrived at following discussions with officials from Monmouthshire County Council who carried out a public consultation regarding access and parking facilities at the station.
- 6.1000 Mr Evans' suggested alternative is very similar to the Green Route -

Alternative 3 - which has undergone a detailed examination. In summary,

- the published scheme would provide access between the motorway and the B4245 west of Rogiet, whereas the suggested alternative would provide access to the east of Rogiet
- traffic from Caldicot would be able to access the motorway at J23 immediately to the west of Rogiet and east of Magor. It would not be relatively quicker or easier for traffic to access the motorway via the Green Route
- traffic on some sections of the B4245 would be higher with the Green Route than with the scheme but there would be other sections which would see an increase in traffic, and
- it is accepted that the primary advantage of the Green Route would be for customers of the MSA travelling in a westbound direction. However, they could use the existing M4 which would be relieved of about half its traffic and the service area would remain commercially viable.

Other written objectors who did not submit statements to the Inquiry

6.1001 Some 319 bespoke written objections were received in response to the publication of the Orders. Those withdrawn by the end of the Inquiry are set out at Annex D. About 5,870 campaign objections were recorded. The details of the objections are set out at paragraphs 1.6 and 1.7 of this report. The vast majority of all these are non-statutory objections and arise from the widespread campaigns dedicated to preventing the construction of the road. The main grounds for objection are those set out at paragraphs 1.13 of this report and in the written submissions received.

7 PROPOSED ALTERNATIVES

The material points were:

Introduction

- 7.1 WG received 22 suggested alternatives to the scheme by the end of the period set for submission of the alternatives in the public Notice and in accordance with Section 258 of the Highways Act 1980. A further 6 were submitted for consideration thereafter. All were considered (PIQ/111).
- 7.2 Details of the alternatives were published by WG in a non-statutory comprehensive report in late March 2017 and a synopsis of the report was delivered to about 110,000 properties throughout much of Gwent. Comments on the alternatives were requested by 10 May 2017 (ID/017, ID/021, ID/022, PIQ/111, PIQ/112, PIQ121b).
- 7.3 Details of the alternatives and their respective comparisons with the published scheme are set out in the Objectors' Suggested Alternatives Report, of March 2017. An updated economic appraisal of the alternatives setting out the revised BCR, taking account of the costs of the mitigation measures in Newport Docks (which would affect some alternatives but not others) and the impending removal of the Severn crossing tolls, was published in February 2018 (PIQ/152).
- 7.4 In the order of 82 responses were submitted by Local Authorities, companies and individuals expressing support for, or counter objection against the alternatives. Some individuals responded by reaffirming their objection to the published scheme. These have been treated as written objections to the scheme as they contained little of relevance to the alternatives. All responses to the report are set out in ID062.
- 7.5 At the Inquiry, Alternatives 1, 2, 3 and 11 were presented in detail by their respective promoters on various days and responded to by WG, with cross-examination all round. For the others, (excepting the ABP promoted Alternatives 13, 14, 15 and 16) I chaired a public broad round-table discussion on 16 May, 2017. That was followed by a detailed presentation and discussion on the alternatives on 14 June 2017. In reaction to those discussions, WG produced PIQs121, 121a and 121b responding to questions raised at these two round-table meetings. These documents, together with all the initiating objections, responses from the public and the various reports produced by WG on alternative routes have formed the basis upon which this report deals with alternatives and the conclusions drawn on their relative merits in comparison with the scheme (ID121, ID130).
- 7.6 A final alternative was suggested in a short email to the Programme Officer on 30 October 2017 (O6927). It advocated a northern loop road as an alternative to passage through the Brynglas Tunnels. At my request this was responded to appropriately by WG.
- 7.7 Brief details of the alternatives, based on WG and promoters' appraisal of

them at the Inquiry and in PIQ/121 are set out below, as are the material points made by the respondents to the exercise, together with a synopsis of the evidence presented to the Public Inquiry by the promoters of alternatives 1, 2, 3 and 11. During the course of the Inquiry Alternatives 8, 9, 10 and 13, 14, 15 and 16 were withdrawn by their respective promoters Roadchef, Rontec and ABP respectively.

- 7.8 All costs and BCRs quoted for the alternatives below, all consistently using HM Treasury national values of time, have had regard to:
- the increased scheme costs as a result of the agreed works needed in Newport Docks (which would increase the costs of some alternatives);
 - the increased traffic which would use the M4 corridor as a result of the abolition of the Severn Crossing tolls, and
 - for purposes of comparison with the alternatives the cost of the published scheme would be about £1.321m and provide a BCR of 1.69.

The alternatives are:

Alternative 1, known as the The Blue Route

- 7.9 This much publicised alternative was advocated by Professor Cole, who appeared as a witness for *UK Cycling*, on the basis that it would serve as a 50mph limited all-purpose trunk road route which could relieve the existing motorway when needed. (Professor Cole's reasoning for promoting the alternative to work alongside an unspecified futuristic mass-transit scheme is set out under the case for Cycling UK in this report along with WG rebuttal of his evidence). A detailed 64-page analytical report on the alternative road was produced by WG and placed on deposit before the start of the Inquiry. (CD6.2.35, ID23).
- 7.10 Alternative 1 would improve both the A48 Newport SDR and the A4810 by providing flyovers to enhance capacity across the existing junctions where practicable, but with little improvement to the inter-junction links in-between. The alternative would run as a single dual carriageway west of the A48/A4810 junction but bifurcate into a Y formation using both these roads eastwards from that point. In the east the alternative would join the existing unimproved M4 at the Coldra (A48) and at Magor (A4810) and, in the west at the heavily used but recently enhanced Tredegar Park at-grade complex.
- 7.11 The alternative would avoid much of the Gwent Levels but would demolish the existing well-used pedestrian and cyclist over bridges across the SDR. No replacements for these heavily used facilities have been promoted or costed against the alternative. The traffic analysis of WG showed that the alternative would offer some limited network resilience to the M4 but improvements to the corridor would draw traffic away from urban Newport onto the SDR and thereby induce considerable junction

hopping by local traffic. That would negate the intended strategic function of the alternative. It would improve access to employment sites in southern Newport but impede local traffic following desire lines to various sites, thereby reducing the effectiveness of this important distributor road.

- 7.12 The disruption that would result from the construction of the alternative along the A48 and A4810 would represent a serious risk to the delivery of the Glan Llyn housing area which is accessed from the A4810. This housing area is a major component of the Newport LDP and, should that be disrupted, the consequential shortfall in the rate of housing delivery could lead to pressure for the identification of new greenfield housing sites contrary to the LDP strategy and PPW.
- 7.13 WG consider that Alternative 1 would cost about £838m at 2015 prices and would produce a BCR of 1.0. The cost estimate reflected the immature nature of the design, the severely constrained urban traffic-burdened site and an element of risk which, as a matter of UK and WG practice would be appropriate to its immature stage of development. Professor Cole doubted that cost which was almost double his earlier estimate, but could offer no technical challenge to the higher figure or compelling proof of his lesser figure (PIQ152).
- 7.14 The alternative would result in a discernible noise increase and a deterioration in air quality at 3,600 properties which would lie within 200 m of it. It would increase greenhouse gas emissions as a result of its limited ability to relieve the existing M4 and bring high-level traffic using the flyovers to within a few metres of recently constructed homes on Corporation Road, Newport and close to existing and future residential development alongside both the A48 SDR and A4810. At the Inquiry a demonstration of the plans showed the carriageway levels of the proposed flyovers would be in the order of 6.5m above ground level and thereby overshadow adjacent dwellings*.
- 7.15 WG pointed out that the alternative would need to be constructed along lengths of public roads which already carry heavy traffic flows. It would lend itself to a stage construction but severe and prolonged disruption to existing traffic would be inevitable. The slip roads would be needed to serve the elevated junctions would have costly retaining walls. The staged construction would further depress the poor economic performance because its negativity in that regard has not been taken account of in the BCR calculation.
- 7.16 Some of the land necessary for the construction along the A4810 is already in the ownership of the highway authority but that would not remove the need to proceed with the time-consuming publication of statutory draft Trunk Road Orders and consultations. Because of that legal inevitability and the need to stage the construction over years the alternative could not be opened as early as the published scheme (PIQ/101b).

- 7.17 The alternative would meet six of the scheme objectives, but all less well than the published scheme. It would fail to meet nine of the scheme objectives.

*Inspector's Note.

The relative positions of the proposals to existing dwellings were demonstrated on the accompanied site visit with Professor Cole and WG representative on 19 September 2017 (PIQ133).

Support for or counter objection to the alternative

- 7.18 10 individuals or organisations offered support for the alternative, with 12 objecting to it. The details of these are set out at ID/41.
- 7.19 NRW confirmed that the alternative would have a significantly reduced impact on the Gwent Levels, with only the Redwick and Llandevenny SSSIs being directly affected. Monmouthshire County Council considered that the alternative would impact on the green-buffer near the Business Park and Brewery at Magor, the setting to Magor village entrance and the Gwent Levels landscape of outstanding historic interest, although significantly less than the published scheme.
- 7.20 Newport City Council considered that the severance of communities to the south of the SDR would be unacceptable and further consideration should be given to the adverse impact that the alternative would have on footpaths and cycle tracks. The Council was also concerned with the impact that the alternative would have on the landscape, the visual amenity of the Gwent Levels, the open countryside, the Cityscape of Newport and the adverse impact on the nearby communities.
- 7.21 Tata Steel objected to the alternative because it would fail to add sufficient capacity to the network, would not address traffic growth or long-term sustainability and would cause significant damaging short-term disruption to local roads during construction. They say that it would physically impact upon the Orb and Llanwern works. They note that the proposer has asserted that sufficient land is available for potential widening of the route in due course but this fails to take account of the impact on the integrated surface water, effluent and sewage treatment systems which are essential pieces of infrastructure for the Llanwern steelworks. There would also be impacts to a complex array of essential utility services passing across the A4810. Should the alternative proceed, a large (and un-costed) grade-separated junction would need to be created to service the steelworks- a point that appears to have been missed by the promoter. That could be disruptive to the waste management landfill site, cause demolition of the TATA headquarters building or take out a substantial portion of the integrated water management system.
- 7.22 Arundal House Estates Ltd considered that the alternative would have an unacceptable impact on the SDR, on local business traffic in south Newport and on the Maesglas housing estate.

- 7.23 An individual thought that the expansion of housing areas near the SDR would mean that the alternative would pollute more living areas than previously envisaged and should be rejected in favour of the published scheme. Another individual thought that the alternative was flawed because it would go through the environs of Newport and not around it where population densities are much lower. It would badly affect many residential areas and would result in a loss of property value. It would pass areas where homes would be soon built, where wildlife areas are already developing and where a new primary school has recently been completed, and it would have an adverse effect on the developing Glan Llyn housing expanse. Mr Paul Flynn MP for Newport opposed it on a number of grounds (S218).
- 7.24 St Modwens Developments highlighted that the alternative would destroy the approved access philosophy underpinning the Glan Llyn development (S139).
- 7.25 In their objections to the scheme a considerable number of individuals and campaigners claimed the alternatives, many specifying the Blue Route, would avoid the Gwent Levels and could be built more quickly and cheaper than the scheme. The Federation of Small Businesses aligned itself with that type of support for an alternative (ID41, ID61).
- 7.26 Others thought that the alternative would:
- result in an improved access and egress from the Magor MSA and would make the best use of Newport's existing infrastructure.
 - provide a viable alternative to the published scheme and merits further investigation
 - have a reduced adverse impact compared to the published scheme for the majority of environmental aspects as it would use an existing transport corridor.
 - not adversely affect Newport Docks and would cross the River Usk at a narrower point, and
 - accord with government policies for sustainability, choice, traffic reduction and carbon emissions (ID41, ID61).

Alternative 2 - Phase 1 of the Blue Route

- 7.27 The alternative which was also advocated by Professor Cole as a variation of Alternative 1, to help span costs over more financial years, comprises a phased construction of the full Blue Route proposal (Alternative 1), with the works categorised into early and later phases. This alternative would include improvements to the Newport SDR and the A4810, with some works to junctions along those roads between J28 and J23A of the M4. WG considered that it would cost £803m at 2015 prices and would produce a BCR of 1.13.

- 7.28 They also conclude that the alternative would result in discernible noise increases and a deterioration in air quality for the 1,800 properties which would lie within 200 m of it. Greenhouse gas emissions would increase because of the limited congestion relief for the M4.
- 7.29 As with Alternative 1, the alternative would need to be constructed along the lengths of operational roads which already carry heavy traffic flows. It would lend itself to a staged construction but severe disruption to existing traffic would be inevitable over a drawn-out period.
- 7.30 The alternative would have identical effects to Alternative 1 in other respects (ID41, ID61).
- 7.31 The alternative would meet six of the scheme objectives, but all less well than the published scheme. It would fail to meet nine of the scheme objectives.

Support for or counter-objection to the alternative

- 7.32 Six individuals or organisations offer support for the alternative, with 11 objecting to it. The details of these are set out at ID/041 (ID/030).
- 7.33 NRW confirmed that the alternative would have a significantly reduced impact on the Gwent Levels SSSIs, with only the Redwick and Llandevenny SSSIs being directly affected.
- 7.34 Monmouthshire County Council considered that the alternative would impact on the green buffer near the business park and Magor Brewery, the setting to Magor village entrance and the Gwent Levels landscape of outstanding historic interest, although significantly less than the published scheme.
- 7.35 Newport City Council considered that the severance of communities to the south of the SDR would be unacceptable and further consideration should be given to the impact that the alternative would have on footpaths and cycle tracks. The Council was also concerned with the impact that the alternative would have on the landscape, the visual amenity of the Gwent Levels, the open countryside, the Cityscape of Newport and the adverse impact on the community. The impact on biodiversity across the Gwent Levels would be much reduced compared to the published scheme with various priority habitat losses much reduced.
- 7.36 Individuals thought that the alternative would:
- provide a viable alternative to the published scheme and merits further investigation, and
 - have a reduced adverse impact compared to the published scheme for the majority of environmental aspects as it would use an existing transport corridor.

7.37 Other individuals considered that:

- the alternative was not strategic enough;
- it would go through Newport rather than around it thereby creating pollution in areas where people live, including a significant number of new housing development areas, a new primary school and small lakes with wildlife;
- it would seriously reduce the value of the many local properties within the area;
- it would accord with government policies for sustainability, choice, traffic reduction and carbon emissions, and
- it would result in an improved access to and egress from the Magor MSA relative to the published scheme.

Alternative 3 known as the Green Route

7.38 The alternative was promoted by residents of the Rogiet area who confirmed that it would be identical to the published scheme from the Glan Llyn junction westward. East of the Glan Llyn junction, the alternative would veer to the north passing just east of Llanwern steelworks and west of Wilcrick Hill, before joining the existing motorway through a free-flowing merged interchange to the west of J23A. The existing over-bridges forming J23A would be replaced to accommodate a dual-three lane motorway through the junction. Two additional at-grade roundabouts connected by a short link road would be located on the existing M48 and B4245 between Rogiet and Caldicot.

7.39 WG considered that the alternative would cost about £1.376m and would provide a BCR of 1.34. It would require the construction of an expensive embankment falling from west of Wilcrick Hill to a point just east of the steelworks headquarters, where the internal steelworks railway would be disrupted at a crucial location (PIQ079). The promoters challenged the cost considering that it could be cheaper than the published scheme but as lay-people offered no technical evidence to support their concern.

7.40 The alternative would substantially reduce the impact on the mediaeval Llanfihangel Rogiet Conservation Area by removing the need for a parallel road alongside the existing M4 from J23A to J23 and the proposed hamburger junction north of Rogiet. It would increase the impact on the historic Wilcrick area and the roundabouts associated with the proposed M48-B4245 junction would be likely to have some impact on the defined setting of the Grade I Registered Park and Garden of Special Historic Interest at Dewstow House and the settings of the Grade II listed Dewstow House and Grade II* and II listed structures nearby (PIQ/096, PIQ/097, PIQ/100).

7.41 In comparison with the published scheme the alternative would:

- be longer, hence increasing greenhouse gas emissions,
- have a similar effect on local air quality and traffic noise
- be of benefit to properties on the west and north-west of Magor and alongside the B4245, whilst producing a small adverse impact on properties in Bishton and Wilcrick, as well as the north-west corner of Caldicot
- load the B4245 with more traffic
- have a greater adverse impact on agriculture than the scheme, with higher grade agricultural land being affected north of the existing M4, while also affecting further good agricultural land in order to gain material from the borrow pit at Green Farm
- meet 9 of the scheme objectives as well as the published scheme and five objectives less well, and
- have a slightly lower adverse effect on the Gwent Levels SSSIs as confirmed by NRW.

Support for or counter-objection to the alternative

- 7.42 Seven individuals or organisations offer support for the alternative with 20 objecting to it (ID/030).
- 7.43 Monmouthshire County Council drew to attention to the potential impact upon the sensitive and elevated landscape north of the M4 which has long views and vistas across the Gwent Levels landscape of outstanding historic interest, as well as the potential impact upon Wilcrick Hill SAM. North and west of Wilcrick Hill the alternative would have the potential of adversely affecting two Sites of Importance for Nature Conservation (SINCs).
- 7.44 Newport City Council expressed concern about the impact that the alternative would have on the local highway network, on NMU traffic, on public rights of way and the potential severance of a large employment site from the rest of Newport. The Council thought that the alternative would have a far greater visual impact than the published scheme, although it would avoid the SSSI area on the Newport/Monmouthshire border. It would also have a lower impact on the Gwent Levels SSSI and would remove less hedgerow than the published scheme.
- 7.45 The Bishton Community Council expressed its opposition to the alternative, largely on grounds of the adverse impact it would have on the landscape, on heritage and on wildlife assets.
- 7.46 Tata Steel objects to the Green Route as it would:
- fail to deliver the same traffic benefits as the published scheme;

- have a huge, complex, disruptive and costly impact on a crucial area of the steelworks that it may not be possible to mitigate. It would disrupt the main works access which would need to be repositioned as would the waste management landfill site, railway shunting areas and the internal lagoons, and
- produce an adverse environmental impact at the company's headquarters buildings (ID/120).

7.47 Individuals thought that the alternative would:

- carve a corridor through an area of currently undisturbed countryside;
- have a significant adverse impact on biodiversity and high-quality farmland;
- need to be constructed on an 8m high embankment, with prominent structures, which would totally dominate the landscape of an otherwise flat area;
- have an adverse impact on the villages of Wilcrick and Bishton and on the setting of the hillfort on Wilcrick Hill;
- potentially cause flooding and, in passing through Tata land, may spread contamination;
- cause light, noise and air pollution to Bishton and Wilcrick as well as to an area frequented by water birds;
- not integrate well with the existing road network;
- deny locals and others through a loss of leisure from cycling, jogging and walking, and
- it would fail to meet some of the 15 specified objectives of the scheme.

7.48 Other individuals favoured the alternative because it would:

- remove noisy traffic from Magor and Undy to a relatively unpopulated valley and the steelworks area, and
- improve access to the Magor MSA.

7.49 The owners of Wilcrick Hill considered that, overall, the alternative was better than the published scheme.

Alternative 4 – realignment of the scheme north and west of Wilcrick Road

7.50 The alternative would be identical to the published scheme from a position near the proposed Glan Llyn junction westward but eastwards from the junction the alternative would run to the north along the eastern

side of the Llanwern steelworks, pass to the west of Wilcrick Hill, over the existing M4 and then turn east towards the Magor interchange to form the eastern tie-in at J23.

7.51 WG considers that the alternative would cost £1,393m at 2015 prices and produce a BCR of 1.40 (PIQ121b Appendix F, PIQ152).

7.52 Relative to the published scheme the alternative would:

- be 1km longer, need additional structures, fill material and land and increase greenhouse gases;
- have a reduced impact on the Gwent Levels SSSIs as confirmed by NRW, but more impact on good quality farmland north of the existing M4 and create more severance;
- have an adverse impact on the operation of the steelworks;
- have similar noise and air quality effects, and
- meet 13 of the scheme objectives, with one objective being less well met.

Support for or counter-objection to the alternative

7.53 No individuals or organisations offered support for the alternative, with 10 objecting to it.

7.54 NRW confirmed that the alternative would have less impact on the Gwent Levels SSSIs than the published scheme.

7.55 Monmouthshire County Council drew attention to the potential impact upon the sensitive and elevated landscape north of the M4 which has long views and vistas across the Gwent Levels landscape of outstanding historic interest, as well as the potential impact upon Wilcrick Hill SAM. North and west of Wilcrick Hill the alternative would have the potential of adversely affecting two Sites of Importance for Nature Conservation.

7.56 Newport City Council expressed concern about the significant adverse impact on the local highway and public right of way network and the potential severance of Newport from a large employment site. There would be less impact on the Gwent Levels SSSI and fewer hedgerows would be affected than with the published scheme.

7.57 Tata Steel objected to the alternative as it would:

- fail to deliver the same traffic benefits as the published scheme;
- have a huge, complex, disruptive and costly impact on the operation of Llanwern steelworks that it may not be possible to mitigate;
- disrupt the main works access which would need to be repositioned

as would the waste management landfill site and the internal lagoons, and

- produce an adverse environmental impact at the company's headquarters buildings (ID120).

7.58 Individuals thought that the alternative would:

- carve a corridor through an area of currently undisturbed countryside;
- have a significant adverse impact on biodiversity;
- need to be constructed on an 8m high embankment, with prominent structures, which would totally dominate the landscape of the otherwise flat area;
- have an adverse impact on the villages of Wilcrick and Bishton and on the setting of the hillfort on Wilcrick Hill;
- potentially cause flooding and, in passing through Tata land, may spread contamination;
- cause light, noise and air pollution to Bishton and Wilcrick as well as to an area frequented by water birds, and
- would not integrate well with the existing road network.

Alternative 5 – relocation of part of J23 between Rogiet and Caldicot

7.59 The alternative comprises the westbound free-flow elements of the published scheme at J23 but:

- the at-grade roundabouts and connections they provide would be relocated between Rogiet and Caldicot;
- an additional road link would be provided to the Severn Tunnel Junction station from the M48, and
- a new length of motorway linking the M48 to the existing M4 would be provided.

7.60 WG calculate that the alternative would cost £1.372m and produce a BCR of 1.66 (ID127, PIQ121b Appendix F, PIQ125).

7.61 Relative to the published scheme the alternative would:

- require additional structures, road construction, fill material and additional land;
- be longer for eastbound vehicles travelling between the existing M4 and the Second Severn Crossing;

- provide improved access to the Severn Tunnel Junction station;
- generate similar traffic noise and have a similar effect on local air quality;
- be longer and increase greenhouse gas emissions;
- reduce the visual impact on the Llanfihangel Rogiet Conservation Area;
- have similar adverse impacts on Dewstow House and its Registered Garden as described for alternative 3 (see paragraph 7.40 above);
- increase the impact on agricultural land;
- have a less adverse impact on views from properties, including those along the B4245 although there would be an adverse impact on properties on the east side of Rogiet, and
- meet 11 of the scheme objectives as well as the published scheme, 1 objective less well, but 2 objectives better.

Support for or counter-objection to the alternative

- 7.62 One individual or organisation offers support for the alternative because they preferred the proposed junction location, with 8 objecting to it on grounds that the delay in implementing the alternative would be an all-round disadvantage, a point highlighted by Tata Steel.
- 7.63 Monmouthshire County Council considered that the alternative would:
- produce a significant impact on the green wedge separating Caldicot from Rogiet;
 - have the potential of impacting upon a sensitive archaeological area and the Gwent Levels Landscape of Outstanding Historic Interest;
 - result in a significant loss of the sensitive elevated landscape to the north of the M4 and on a grassland SINC, and
 - impact on buried archaeological remains
- 7.64 Newport City Council considers the scheme to be broadly acceptable although it appears that there would be a possibility of a greater impact on biodiversity with potentially more habitat loss.
- 7.65 The alternative would result in a lengthy and convoluted MSA access and egress at Magor.

Alternative 6 - M48/B4245 Severn Tunnel Junction station link

- 7.66 This is a relatively simple addition to the published scheme (rather than

an alternative to it), located some distance from its eastern end and east of Rogiet. In effect, it is a local road scheme which would be added to the strategic new motorway. Ten individuals or organisations offer support for the proposal with 11 objecting to it.

- 7.67 The proposal would comprise two additional at-grade roundabouts located on the existing M48 and B4245. The roundabouts would be connected by a short link road, and an additional link road would be provided to the Severn Tunnel Junction station to the south.
- 7.68 WG calculate that the alternative would cost £1,332m (including the common elements with the published scheme) and produce a combined BCR of 1.75 (PIQ121b Appendix F, ID127).
- 7.69 Relative to the published scheme the alternative would:
- have an adverse additional impact on agricultural land;
 - slightly benefit properties along the B4245 through Rogiet and along the station access road;
 - have similar adverse impacts on Dewstow House and its Registered Garden as described for alternative 3 (see paragraph 7.40 above);
 - generate similar levels of greenhouse gas emissions;
 - have a similar effect on local air quality;
 - have a slight adverse impact on properties on the east side of Rogiet and the west side of Caldicot, and
 - meet 12 of the scheme's objectives as well as the published scheme and 2 objectives better.

Support for or counter-objection to the alternative

- 7.70 No individuals or organisations offer support for the alternative, with 7 objecting to it. Monmouthshire County Council considers that the alternative would have a significant impact upon the green wedges which visually separate Caldicot and Rogiet. The inevitable delay, which would be incurred in adopting the alternative would have a negative impact on the operations of Tata Steel.

Alternative 7 - Direct link to the Severn Tunnel Junction station from J23

- 7.71 This local alternative, which could be regarded as a stand-alone local scheme, is regarded by WG to be a matter solely for the local authority. It simply comprises an additional link road from the B4245 roundabout at J23 to the Severn Tunnel Junction station thereby improving access to the station. Combining it with the published scheme would cost £1.324m and produce a BCR of 1.70 (PIQ121b Appendix F, ID125).

- 7.72 Should the addition be accepted as an add-on to the published scheme, it would increase noise and local air quality near Rogiet but be of benefit to property alongside the existing station access route. It would increase the impact on the Llanfihangel Rogiet Conservation Area.

Support for or counter-objection to the alternative

- 7.73 No individuals or organisations offer support for the alternative with 7 objecting to it.
- 7.74 Monmouthshire County Council considers that there would be an adverse direct impact upon amenity, open space, a green wedge and area of archaeological sensitivity, including the settings of St Mary's church and the Rogiet Country Park.

Alternatives 8 – 10 various connections to junction 23A

- 7.75 On day 53 of the Inquiry, Alternatives 8, 9 and 10 were formally withdrawn by the promoters of them – Roadchef and Rontec. No other party advanced these by the statutory deadline for the presentation of alternatives and it is clear that all three were advocated with the sole intent of producing a road network that would serve the interests of the Magor MSA better than the scheme.

Alternative 11- improvement of J23

- 7.76 The alternative, promoted by Roadchef and Rontec, the owners and operators within the Magor MSA, would add an additional westbound on-slip connecting the existing J23A to the westbound carriageway of the scheme via the proposed Newport Road roundabout. The slip road would bridge the proposed motorway immediately to the west of Magor.
- 7.77 Relative to the published scheme, WG considers that the additional slip road would:
- cost about £15 million more;
 - enable traffic from the Magor MSA to connect directly to the proposed motorway and travel westbound without the need to travel along the existing M4 or use the A4810;
 - produce a slight adverse visual impact to properties in northwest Magor, slightly increase noise at those properties and marginally reduce air quality there;
 - improve access for west Magor, the Magor MSA and the Wales One Business Park, and
 - meet 13 of the scheme objectives as well as the published scheme with 1 objective less well.

Support for or counter-objection to the alternative

- 7.78 Three individuals or organisations offered support for the alternative with 7 objecting to it.

Alternative 12 – Minor realignment south of Meadows Road

- 7.79 The alternative would change the line of the published scheme south of Meadows Road by about 27m to avoid an impact on the car parking area of the International Automation and Control Systems business premises. This would require the relocation of an additional Western Power 132kV power line pylon, the consequences of which could be a program delay of up to 24 months and loss of power to the Severn Tunnel on the London-Swansea railway.
- 7.80 WG considers that the cost of the realigned scheme would be £1.323m at 2015 prices and it would produce a BCR of 1.69. That represents an additional capital cost of about £2m (PIQ121b Appendix F, PIQ125).
- 7.81 It would avoid the impact that the scheme would have on the car parking area of the premises. The alternative would meet 14 of the scheme objectives as well as the published scheme.

Support for or counter-objection to the alternative

- 7.82 No individuals or organisations offer support for the alternative with 7 objecting to it.

Alternatives 13, 14, 15, 16 and 17 Northern Dock routes and removal of Docks Way junction and link

- 7.83 On day 67 of the Inquiry, Alternatives 13, 14, 15, 16 and 17 were formally withdrawn by the promoters of them. No other party advanced these by the statutory deadline for the presentation of alternatives and it is clear that all were advocated with the intent of producing a road network that would lessen the impact on Newport Docks.

Alternative 18 - Free-flow at J23 with a link to J23a - known as the 2006 TR111 scheme.

- 7.84 The alternative would provide a revised alignment between J23 and J23a and an upgrading of the existing J23 to facilitate free-flow connections to both the existing M4 west and the proposed motorway south of Newport, whilst providing a half-junction on the western side of Magor.
- 7.85 WG considers it would cost £1,358m at 2015 prices, £37m more than the published scheme, and would produce a BCR of 1.37 (PIQ121b Appendix F, PIQ125).
- 7.86 Relative to the published scheme it would:
- improve access for west Magor and the Magor MSA;
 - remove the B4245 connection at J23 and the access for Undy,

Rogiet and Caldicot;

- increase traffic on the B4245 through Magor, Undy and Caldicot;
- slightly increase road traffic noise and reduce local air quality;
- reduced the impact on the Llanfiangel Rogiet Conservation Area, and
- meet 10 of the scheme objectives as well as the published scheme and 4 objectives less well.

Support for or counter-objection to the alternative

7.87 One organisation offered support for the alternative, with 7 objecting to it.

Alternative 19 – online widening of Brynglas tunnels and the motorway

7.88 The alternative would widen the existing M4 to provide a dual-four lane motorway between J29 at Castleton and J26 at Malpas and a dual three lane motorway between J26 and J25. That would include the provision of a new westbound three-lane tunnel (one way) at Brynglas with the existing twin-bore tunnels adapted to carry three lanes of eastbound traffic. No improvements to the existing M4 would be undertaken west of J29 or east of J25 (PIQ/112).

7.89 WG considers that the alternative would cost £743m at 2015 prices, about half that of the published scheme and would produce a BCR of 0.15. As the scheme would require significant online widening and construction it would take about 7.5 years to complete and would severely delay motorway traffic. The dis-benefits of this delay have not been included in the BCR which is already very poor (PIQ121b Appendix F, PIQ125).

7.90 The alternative would improve traffic capacity along the existing motorway between J25 and J29, including the existing bottleneck at Brynglas Tunnels. In the opinion of WG, whilst that would alleviate congestion along this section of motorway, the relief would attract more traffic to the corridor causing the section between J24 and J25, where there would be no increase in capacity, to replace the Brynglas Tunnels as the most congested section. Constructing a tunnel to the north of the M4 rather than the south would offer no further benefit but would be more expensive.

7.91 WG also considers that there would be adverse road traffic noise and local air quality impacts relative to the published scheme, because traffic would be moved closer to where people live, and there would be increased greenhouse gas emissions relative to the scheme. It accepts that the impact on the Gwent Levels SSSI's and its historic landscape would be avoided but there would be increased landscape and visual impacts along the existing corridor, including those from a new tunnel at

Brynglas and other associated structures. Disposal of the soil from the excavated tunnels would be a significant issue. Driving a new tunnel to the south of Brynglas Tunnels would result in significant property demolition and disruption to the Monmouthshire and Brecon canal.

- 7.92 The alternative would meet 6 of the scheme objectives but all less well than the published scheme and would not meet 9 of the objectives. It would not be resilient or sustainable or provide sufficient capacity in the longer term, and congestion on the existing motorway would remain at peak times.

Support for or counter-objection to the alternative

- 7.93 Four individuals or organisations offer support for the alternative with 8 objecting to it.
- 7.94 Online widening of an existing bottleneck would exacerbate the problems during construction and jeopardise investment in Tata's Welsh operations. Long-term and peak hour congestion problems would continue.

Alternative 20 – Complete tunnel from Magor to Castleton

- 7.95 The alternative would comprise an alternative mainline motorway alignment between J29 at Castleton and J23. It would be more direct and shorter than the published scheme and the majority of the route would be carried in a 16-km tunnel beneath the Gwent Levels SSSIs and River Usk SAC.
- 7.96 WG considers that at 2015 prices it would broadly cost £9,889m and produce a BCR of 0.16 (PIQ121b Appendix F, PIQ125). It accepts that it would:
- provide a quick, direct route but would serve Newport and the docks less well than the published scheme because of the lack of intermediate junction;
 - relieve traffic on the existing M4 thereby improving local air quality and reducing road traffic noise;
 - not burden the Gwent Levels or the Historic Landscape with traffic noise or visual intrusion;
 - present a major environmental issue from soil disposal;
 - provide good access to Magor MSA, and
 - would meet 8 of the scheme objectives as well as the published scheme, 4 objectives less well and 2 objectives better.

Support for or counter-objection to the alternative

7.97 Four individuals or organisations offered support for the alternative with 9 objecting to it.

7.98 Relative to the published scheme Tata Steel believe:

- there would be very significant geotechnical risks to the Tata steelworks where the majority of structures are founded on deep piles;
- the lack of a connecting junction with Newport would be a substantial disadvantage to the steelworks and bring about increased travel time for intermediate destinations;
- the resilience of the road is questionable although it would shorten journey times from Port Talbot steelworks to England, and
- delay in implementation would negatively impact on operations which would also be adversely affected during geotechnical investigations.

7.99 A few individuals supported the alternative because it would have minimal impact upon wildlife areas but one was opposed to it because it would detrimentally affect property.

Alternative 21 – known as the south of Magor route

7.100 This would provide a more direct mainline motorway alignment between the proposed Glan Llyn junction and the Second Severn Crossing toll plaza. To the west of Glan Llyn the alternative would be identical to the published scheme.

7.101 WG considers that it would cost £1.418m at 2015 prices and it would produce a BCR of 1.33 (PIQ121b Appendix F, PIQ125).

7.102 In its view, relative to the published scheme, the alternative would:

- produce a slightly adverse effect from road traffic noise and on local air quality;
- increase visual impact on properties to the south of Magor but reduce the impact on properties on the northern side of the town and in Rogiet, including Llangihangel Rogiet Conservation area;
- create a significantly greater adverse effect on the Gwent Levels, including land within the Magor and Undy and Magor Marsh SSSIs, neither of which would be affected by the published scheme;
- cause an additional 2,475m of motorway to pass through the SSSIs, with an additional 660m through the Magor Marsh Nature Reserve, and meet 8 of the scheme objectives as well as the published scheme but 6 objectives less well.

Support for or counter-objection to the alternative

- 7.103 No individuals or organisations offered support for the alternative with 10 objecting to it.
- 7.104 NRW considered that compared to the published scheme the alternative would have an increased impact, in terms of land take, on the Gwent Levels SSSI's and it would have a greater impact on flood risk as the alignment would involve more of the route being located within the tidal floodplain south of Magor and Undy.
- 7.105 Individuals thought that the alternative would not improve connectivity with Chepstow but would be "horribly devastating" to the SSSIs and other environmental interests, whilst being within 25 m of a large number of dwellings in Undy. They thought that the alternative could not be cost-effective and would cause adverse noise at property (particularly having regard to the prevailing wind direction), landscape and biodiversity disadvantages. It would make Magor and Undy an island with motorways all around.
- 7.106 Relative to the published scheme the alternative would improve access to the Magor MSA.

Alternative 22 - Closure of existing M4 junctions

- 7.107 This alternative would close the east facing slip roads at J25 (Caerleon) and J26 (Malpas), with the complete closure of J27 (High Cross) without construction of any part of the proposed scheme. The objective of the alternative would be to reduce use of the existing M4 by local traffic thereby negating the need for a new road.
- 7.108 WG considered that the basic alternative would cost £12m at 2015 prices and would produce a negative BCR because optimal routes for traffic would be denied. In its view the net present value of the scheme would be very negative (PIQ/121 Appendix F, PIQ 121b Appendix F, PIQ125).
- 7.109 WG also considers that there would be an undesirable increase in local traffic throughout Newport and in Magor, Undy, Caldicot and Rogiet. The alternative would result in a minor reduction in traffic between J24 and J26 at peak times and a minor increase in traffic between J26 and J28 at peak times, generally amounting to a difference in flows of less than 5% but overall increasing the length of travel. That would not solve the current problem of the existing M4 but would force traffic onto less optimum routes.
- 7.110 The alternative would produce an adverse impact in terms of local air quality and greenhouse gas emissions compared to the published scheme but the impact on the Gwent Levels and its historic landscape would be completely avoided. There would continue to be operational problems on the existing M4 and there would be an adverse impact compared to the published scheme in terms of road traffic noise.

7.111 The alternative would meet 5 of the scheme objectives but all less well than the published scheme. It would not meet 10 of the scheme objectives.

Support for or counter-objection to the alternative

7.112 Two individuals or organisations offer support for the alternative with 10 objecting to it.

7.113 Newport City Council, in accepting WG's assessment of the alternative, recognises that there would be a reduced impact on the landscape and visual amenity of the Gwent Levels and the open countryside, but recognises the adverse impact that it would have on local roads within the city, in terms of increased traffic, congestion and air pollution.

7.114 Tata Steel would be adversely affected relative to the scheme because traffic flows would be vastly worse on the existing M4.

7.115 The alternative would retain access to the Magor MSA.

7.116 An individual, in reacting to the omnibus publication of alternatives, considered that the basic alternative could have merit when enhanced/considered alongside:

- a full M4 upgrade to "smart motorway" status;
- improvements (unspecified) to local roads;
- a significant upgrade to public transport, specifically as part of the Metro scheme;
- a light rail route along the line of the existing A48;
- some unspecified online widening of the M4, and
- the potential of one additional tunnel at Brynglas, if needed in the future, accepting that this would cause local disturbance to property*.

*Inspector's Note

That was the genesis of Alternative 27.

7.117 Such a package would meet scheme objective 15 - to secure more sustainable traffic choices.

7.118 Other individuals thought that the alternative would fail to solve the problems of excess traffic on the M4 and that tinkering with junctions would make no real impact whilst ignoring the adverse effect which would occur from the diverted traffic in an area where local roads are already busy.

Inspector's Note

The following alternatives (23-28) were not identified or submitted by objectors in accordance with the timescale set by statute for alternative routes or as specified at the Pre-Inquiry meetings. Their late submissions meant that they missed being included in the omnibus alternatives brochure that was subjected to widespread publication. Consequently, no public reaction to these particular alternatives was available to the Inquiry.

Alternative 23 – known as the the Blue Route with a Duffryn link road.

- 7.119 The alternative would be a variation of the Blue Route (Alternative 1) arising from the addition of the Duffryn Link Road, and was originally proposed at an exhibition in 2013, but was not formally submitted in response to the publication of the Draft Scheme, or in accordance with the directive issued at the Pre-Inquiry meeting (PIQ082).
- 7.120 The Link Road would connect the proposed dual carriageway link south of Imperial Park, Coedkernew to Alternative 1 at Maesglas roundabout. The Duffryn Link alignment would run north of the main line railway and south-east of the Duffryn residential area, which would gain access to it from an at-grade connection. Effectively it would be a local road.
- 7.121 WG considers that the alternative would cost £916m, with a BCR of 0.45.
- 7.122 It would improve access to employment sites to the south of Newport, although, overall the beneficial effects on the economy would be more limited and localised than the published scheme, as for the Blue Route (Alternative 1).
- 7.123 Relative to the published scheme, the alternative would have a reduced impact on biodiversity, although there would be an adverse impact arising from the Dyffryn Link Road within the St Brides SSSI, as well as the other adverse severe environmental effects associated with Alternative 1. It would have a lower impact on the historic landscape south of Newport although the Duffryn Link Road would result in a number of small landlocked parcels of land and visual impacts on the edge of Duffryn.
- 7.124 There would be adverse impacts on pedestrian and cyclist movement as a result of an increase in severance and increased traffic volumes and junction works on the SDR, the A4810 and the Duffryn Link route.

Alternative 24 - known as the Amber Route

- 7.125 This alternative is a variation of the Blue Route (phase 1, known as Alternative 2). It would include a new 5.4 km section of road that would be constructed on an alignment further south of that of Alternative 2 to link the two upgraded sections of the A4810 and the A48 Newport SDR. This proposal would include a new bridge over the River Usk, an elevated section through Newport Docks and east of the river and a grade-separated junction on the A4810 to connect to the A48. At the Tredegar Park connection to the M4, a free-flow connection would be provided for the major movements of traffic.
- 7.126 WG considers that the alternative would cost £1,231m at 2015 prices and

would produce a BCR of 0.37 (ID125).

7.127 Relative to the published scheme the alternative would provide:

- limited network resilience;
- local accessibility benefits;
- little relief from congestion on the existing M4 to the extent that, by 2037, the initial benefits of the alternative would be offset by traffic growth from which capacity issues would arise;
- an unsatisfactory long-term solution to the problems on the M4 which would continue to experience operational problems, and
- improved access to employment sites to the south of Newport although beneficial effects to the economy would be more limited and localised than with the published scheme.

7.128 The alternative would result in some discernible noise increase at properties along the route but it would largely avoid impacts to the Gwent Levels and the historic landscape.

7.129 WG also considers that because traffic on the existing M4 would not be relieved as much as with the published scheme there would be fewer noise benefits in that area. There would also be an overall adverse effect compared to the published scheme in terms of local air quality and the alternative would result in increased greenhouse gas emissions because of the limited congestion relief to the existing motorway. The environmental impact on the existing communities in Newport would be severe.

7.130 There would be an adverse impact upon pedestrian and cyclist movement as a result of increased severance arising from the increased traffic volumes and junction works along part of the A48 SDR and A4810. That would impact upon the movement of people and non-motorised modes.

Alternative 25 - Tunnel from east of J24 to west of J26, to the south of Brynglass tunnels.

Inspector's Note

This alternative, initially based on a broad definition, was developed by WG during the course of the Inquiry and the promoter confirmed a refined final version of the alternative on 28 September 2017.

7.131 The alternative would use a tunnel to carry motorway through-traffic from J24 to J26. Its details are set out on ID/103. The tunnel would accommodate a dual-three lane motorway with its portals east of J24 in the east and west of J26 in the west. The existing M4 between J24 and J26 would be reclassified as a trunk road. Because of topographical constraints the tunnel would be approximately 8 km long and would tie in to the existing motorway at each end (ID/103).

- 7.132 WG also considers that a broad estimate of cost of the alternative bi-directional tunnel would be about £4.9bn. It would produce a BCR considerably lower than that of the published scheme.
- 7.133 The alternative would provide relief from congestion between J24 and J26 but would do nothing to address the congestion further west. Any improvement of the motorway to the west would involve the construction of high vertical retaining walls set back from the existing walls, thereby causing property demolition, none of the cost of which has been included in the estimate. The most heavily trafficked section of the motorway lies between J28 and J29. There would be no improvements to the substandard nature of the motorway between J27 and J28. Because of the limitation of the alternative it has been assessed as not meeting any of the scheme's objectives, although it would improve air quality between J24 and J26 and would reduce road traffic noise whilst not burdening the Gwent Levels with either pollution or noise.
- 7.134 The alternative would not improve access to southern Newport, although it would completely avoid impacting upon the Gwent Levels. Construction of the tunnel would give rise to more than 6,000,000 m³ of soil and a significant issue of disposal of such material.

Alternative 26: Realignment of the motorway from J25-J27 to the north of Brynglas (O6927)

- 7.135 This alternative was suggested late in the Inquiry period in the form of a short email broadly describing the idea of diverting the motorway from J25 to the north of the tunnels at Brynglas, broadly parallel to the River Usk before swinging westward through Malpas, either in a tunnel or cutting, to re-join the motorway west of J26.
- 7.136 WG pointed out that a corridor to the north of Newport was historically discarded in favour of the southern corridor, although no specific route was put to public consultation (CD4.1.9, CD4.1.4, CD4.1.13).
- 7.137 Relative to the scheme the northern route would have reduced traffic benefits, be relatively costly because of the need for a cutting through rock (or tunnelling) and have a BCR of only about 0.17. There would be few non-user benefits and more traffic would be attracted to the inadequate sections of the M4 between J24-25 and the busiest length from J27-29. The route would encroach upon the residential area of Malpas with the inevitable environmental dis-benefit.

Alternative 27- a many armed hybrid strategy

- 7.138 This is a hybrid combination of individual road and public transport improvement schemes, acting in combination, in the long-term. The alternative would avoid a new motorway across the Gwent Levels. The alternative, which would be better described as a transport strategy rather than an alternative route advanced in accordance with Section 258 of the Highways Act 1980, emerged after a long gestation period throughout the period of the Inquiry. Its constituent parts, some of which

are very loosely defined to the extent of being analytically indeterminate, include:

- building the South Wales Metro;
- building a light-rail route along the A48 alignment;
- closing J27 (and potentially another M4 junction) to encourage a re-routing of car-based commuters onto public transport;
- improve non-specified local roads to compensate for the closure of J27;
- building the Blue Route - Alternative 1;
- on line widening of the existing motorway but less extensively than Alternative 19, to create a SMART motorway (as developed on the English motorway network), by widening hard shoulders and improving forward visibility to the required standard;
- improved walking and cycling facilities and, if necessary;
- driving a new tunnel at Brynglas, just south of the M4 with the new motorway line sweeping back to and from the existing westbound carriageway either side of the tunnel. The eastbound motorway would then be carried through the Crindau Hill using both existing tunnels (PIQ/156, PIQ 156a, PIQ/156b revised, PIQ156 revision c).

7.139 The alternative is aimed at progressively drawing traffic off the M4 (ID139).

7.140 WG considered that the closure of J27 would reduce traffic by 5% between J24 and 26 at peak times if east facing slips at J26 were also closed but the closure would create a similar increase between J26 and J28, as traffic denied optimum access diverted onto already congested existing local routes to get access to the motorway (ID139). Such a proposal would have negative cost benefit consequences because local traffic would be forced onto more congested and longer routes. Newport City Council would oppose such a proposal and junction closures would be bound to impede the public transport movement, and closure of junction 27 in isolation would force traffic to reroute through the A4048 corridor thereby burdening the already heavily congested J28 as well as adding significantly to the ripple effect that would arise on the local road network from the closure of M4 junctions.

7.141 WG highlighted that full SMART motorways are designed to meet the strict minimum criteria in terms of horizontal and vertical geometry and visibility. The existing M4 at Newport falls short on these standards, particularly in terms of visibility and does not have continuous hard shoulder or full width hard shoulder which could accommodate a running lane. The proposal for a SMART motorway would therefore require considerable online widening over a length similar to that suggested as

Alternative 19, which itself would cost about £740m and as in the case of Alternative 27 would require the demolition of significant dwellings both near Brynglas and elsewhere (PIQ125).

- 7.142 WG further considers that, in effect, the online widening proposed would simply shift the congestion from the current bottleneck at the Brynglas Tunnels to the section between J24 and J25 where there would be no increase in capacity. This section falls short of visibility requirements and does not have a continuous hard shoulder. Therefore, to install a SMART motorway along this section further widening would be required adjacent to residential areas thereby significantly increasing the cost of the widening measure and the adverse impact on people, property and land take in terms of road traffic noise and air pollution.
- 7.143 The proposal to include the Blue Route (Alternative 1) as part of the package would be costly, in the order of £800m, offer poor value for money, fail to draw traffic from the M4 corridor, overload the A48 SDR which currently performs an extremely important function for Newport and its industry and threaten the well-being of those living adjacent to the SDR, particularly those living near the roundabouts which would need to be grade separated to a level well above living and bedroom levels (PIQ125).
- 7.144 The combination of the Blue Route and online M4 widening would threaten the well-being of a significant number of residents whose dwellings flank those corridors yet fail to deliver a solution to the problem of the M4 from J23a to J29.
- 7.145 WG considers from its successive analysis work undertaken for the Inquiry that the Metro and other public transport measures would not address the problems on the M4, only reducing traffic flows by less than 4% (ID73). Even with ambitious assumptions in favour of public transport and including improved bus provision the amount of traffic taken from the M4 would be less than 6%. In addition, given the findings of the Public Transport Overview Report, further enhancements to rail services, park-and-ride facilities and enhanced bus services would be unlikely to have a significant impact on travel behaviour along the M4 and would not therefore overcome the problems associated with it.
- 7.146 No viable light rail route along the A48 corridor in Newport has been identified through previous public transport studies and as such is not deemed a feasible component to include within the appraisal of alternative 27. However, it is clear that the construction of a new light rail line would be a very high capital cost intervention and given that there is an existing heavy rail network providing connectivity between Cardiff and Newport now, as well as competing bus services, the economic efficiency of a new light rail route would be doubtful. Taken overall the public transport measures advocated would compete with each other for east-west custom and have an insignificant beneficial effect on the M4 in the design year of 2037 (ID23).

Alternative 28- direct connections at the eastern end of the scheme

- 7.147 The basis of this alternative is to improve the resilience of the scheme design at J23 to take account of additional traffic pressures which would arise if the Second Severn Crossing is closed and all traffic bound to or from South Wales would need to use the M48 and First Severn Crossing. It is advocated that the potential problem, which might give rise to significant economic harm, could be solved by the creation of a free-flowing motorway arrangement at J23, in addition to a grade-separated roundabout on the existing M48 between Rogiet and Caldicot, connecting to a further at-grade roundabout on the B4245.
- 7.148 No views of the public were sought in respect of this alternative. It is accepted that traffic diverted as a result of any closure of the Second Severn Crossing would have to pass through the proposed J23 roundabout rather than use a free flow connection as at present and that would lead to an increase in journey time. Disruption could be substantial.
- 7.149 The alternative would prevent diverted flows from travelling through the proposed J23 roundabout but the suggested rearrangement would require two additional over bridges and a very significant increase in cost, land requirements and environmental impact but would only provide limited benefits to the network since closure of the Second Severn Crossing is very infrequent. In the last two years there have been a small total of unscheduled closures of the M4 between J22 and J23 which has resulted in traffic being diverted via the M48. There have been 12 schedule closures for maintenance purposes, all of which took place during the night. The M48 bridge is closed more frequently than the Second Severn Crossing and the scheme would improve network resilience for those eventualities. In the last two years there have been a total of 10 unscheduled closures of the M48 Severn crossing. In contrast with most stretches of motorway in the UK, incidents on the Second Severn Crossing would cause traffic to be diverted via another motorway and not burden local roads. In such circumstances the additional substantial cost of £55m of providing a free-flow connection to the M48 cannot be justified. In addition, the proposed reconfiguration of J23 would decrease overall user benefits as well as increasing some costs because of the reduced connectivity with the M4 for the majority of traffic on the B4245 corridor.

Preamble to the conclusions

To assist the reader, the order and contents of the conclusions section of this report are as follows:

Contents of Conclusions page

Preliminary remarks Pg. 366

The scope of the Inquiries Pg. 367

Introduction to conclusions Pg. 368

The legal and procedural submission

Breaches of the Habitats Directive Pg.
369

Marshalls Mono Pg. 370

Compensation for stone extraction and haulage Pg.
372

Equality of arms Pg. 372

CPO of land which would be distant from the scheme Pg.
373

Breach of the Active Travel Act 2013
Pg.373

Issues of human rights Pg. 375

Environment (Wales) Act 2016 Pg. 375

Well-being of Future Generations Act 2015 Pg.
376

Wildlife and Countryside Act 1981 Pg.
380

The Principle of building a new motorway and modifying the existing one-Conclusions on:

objections and support, Pg. 381

local and national planning and the requirements of agriculture, Pg.
383

scheme objectives,

the traffic case, continuing the do minimum situation, public transport
Pg. 386

modal shift and effectiveness of scheme, 392	Pg.
funding and economics,	Pg. 393
road traffic noise, air quality, pollution and carbon, Pg. 396	
environmental assessment, ES, SIAA, 396	Pg.
The effect on nature conservation, conclusions on:	
protected species,	Pg. 399
the effect on Gwent Levels SSSIs, 402	Pg.
the GWT points on ecology, 407	Pg.
potential flooding and water pollution,	Pg. 408
the effects on the landscape, registered landscape,	Pg. 410
the effects on cultural heritage, listed buildings, conservation areas 412	Pg.
the objections of the Statutory Undertakers, 414	Pg.
the effects on the Newport docks, 414	Pg.
the statutory objections from the Community Councils 416	Pg.
the individual statutory objections from the farming community, Pg. 417	
The statutory objections on the principle of the scheme,	
specific points opposing the principal of the scheme	Pg. 429
Further conclusions on:	
the 28 alternatives, 454	Pg.
written objections,	Pg. 474
the Environmental Commitments 487	Pg. 474

the ultimate balance of the competing factors,
474 Pg.

the highway line Schemes and Orders,
479 Pg.

the SRO, Pg. 480

the CPO Pg. 480

Section 19 certificates
481 Pg.

Conclusions on whether the scheme should proceed.

the overall balance and overall conclusions
481 Pg.

8. CONCLUSIONS

Preliminary Remarks

- 8.1 Having regard to the foregoing, I have reached the following conclusions. References have been given in brackets to the appropriate earlier paragraphs of the report.
- 8.2 The efficient conduct of the Inquiry was due, in a large part, to the careful and well considered way in which all participants presented their cases. With few exceptions, the statements of evidence were received well in advance of their presentation and most in accordance with requests made at the Pre-Inquiry meetings. This, combined with the considerable efforts of WG team in supplying evidence, evolving material and fully written prompt responses to the objections, gave all parties a good opportunity to understand and debate the issues [1.3, 1.4].

The changes to the scope of the Inquiries

- 8.3 It was, in my view, unfortunate that the scope of Inquiries had to be extended several times during the course of the proceedings and at times that were not all propitious, although I am satisfied that, whilst inconvenient, no interests were prejudiced as a result. The requirement to adopt that course arose from the need for fresh prime evidence and fresh draft Schemes and Orders and formal Statements because of the understandable need to react to the previously unheralded 2018 removal of Severn crossings tolls and the engineering changes needed for:
- the proposed M4 eastbound slip-road egress at J23a at Magor;
 - the alignment and position of the Docks access road;
 - the increased navigation headroom clearance of the Usk viaduct;
 - the safety related works to the South Dock quayside and Junction Cut, and
 - the significant accommodation works within the Docks.
- 8.4 These costly and economically influential changes resulted in a conveyor belt of fresh technical and environmental documentation being published for interested parties to absorb. This in turn necessitated the Inquiry programme to be altered to make full allowance for the presentation of supplementary proofs of evidence, fresh objecting evidence and the opportunity of thorough additional cross-examination of Government witnesses. No party complained that its case had been adversely prejudiced by the examination of the fresh evidence and none were denied the opportunity of reappearing, or appearing for the first time, to criticise the new developments and present additional evidence. In the reporting of the respective cases in Section 6, this report distinguishes the material points that originally or subsequently arose [1.4].
- 8.5 My conclusions below are based on the complete package of draft Schemes and Orders, which included proposals for a number of modifications to them upon making and the relevant extant material at the close of the Inquiry. This included the revised-down value of time

issued by the Department for Transport for use in economic assessments of road schemes and adopted by WG for the scheme assessment. All 28 alternatives were considered on an absolute comparative basis after making allowance for the increased cost and reduced economics that affected those that would cross through the Docks, in comparison with those that did not [7.1-7.149].

- 8.6 I am satisfied that all material associated with the publication of the original and later draft Schemes and Orders and statutory Statements accorded with statute were all available in the Inquiry library and on its web-site [1.15].

Introduction to Conclusions

- 8.7 If I am to recommend that the scheme proceeds, it needs to be shown that, in accordance with the requirements of the Highways Act 1980 (as amended) and the Acquisition of Land Act 1981:

- on balance, and having regard to the requirements of local and national planning, including the requirements of agriculture, it is expedient and in the public interest;
- the imposition of headroom and clearance constraints which would be imposed by the viaduct across the Rivers Usk and Ebbw, and over the Newport Docks would be compatible with the reasonable requirements of shipping along the navigable waterways, and
- having regard to the proposed accommodation and safety works and the construction of the motorway within and above the docks, the scheme would not have a serious detriment to the undertaking of the operation of the Port of Newport itself [1.3].

- 8.8 If I am to recommend that the status of the existing M4 should be downgraded to that of an all-purpose trunk road, it needs to be shown that those proposals are compatible with the scheme for constructing a new motorway from Magor to Castleton and are themselves, on balance, expedient in the public interest.

- 8.9 In the case of lands to be acquired under the Compulsory Purchase Order, and having regard to both statutory criteria and advice, it must be shown that there is a compelling need for compulsory purchase in the public interest which justifies interference with the human rights of those with an interest in the land, that WG has a clear idea how it intends using the land it seeks to acquire, that all land is needed for the scheme, that the necessary resources to carry out these plans would be available within a reasonable time scale, and the scheme is unlikely to be blocked by any impediment to its implementation. In the specific cases of land to be acquired from statutory allotments and common land, in relation to the proposed Section 19 Certificates it needs to be shown that the replacement land offered would not be less in area than that acquired and be equally advantageous to those with an interest in the land [1.3].

- 8.10 With regard to the Side Roads Order it must be shown that alternative routes to highways proposed for stopping up are reasonably convenient

and where private means of access are to be stopped up, that another reasonably convenient access is available, or would be provided by the scheme, if needed [1.3].

- 8.11 As a generality it needs to be shown that the scheme would not be in conflict with the law as set down in relevant Acts and I turn now to a consideration of the subsisting legal submissions.

The Legal and Procedural Submissions

- 8.12 The Public Inquiry was conducted in accordance with standard procedures for Ministerial schemes which I set out at the two Pre-Inquiry meetings, circulated to all objectors and reiterated at the start of the Inquiry. Mr McCooey and I conducted the Inquiry in an inquisitorial way, and where parties to the Inquiry needed help, we neutralised any disadvantage by assisting them. I am satisfied that the Inquiry was thorough, it represented a fair hearing for all concerned and because of the approach taken, no party was disadvantaged by the absence of professional representation [2.1-2.70].

- 8.13 No procedural submissions arose at the Inquiry [2.1].

- 8.14 I received the legal submissions synopsised from paragraph 8.15 onwards. Being matters of law they are not for me to determine but I indicate on each issue my own assessment of the arguments. In so doing, I give references to my earlier reporting of the points raised in the relevant submissions, together with WG response. The gist of these submissions and my associated assessment of them follows.

Breach of the Habitats Directive (92/43/EEC)

- 8.15 This legal issue arose in respect of bats and the Wye Valley and Forest of Dean Bat Sites SAC. The cases of precedent referred to were:

- Waddenzee v Statssecretarias van Landbouw (the Waddenzee case - ref. C-127/02), and
- Morge v Hampshire [2011] UKSC2 (the Morge case).

- 8.16 Having reported on the views of the parties in Section 2 of this report, I regard the following as pertinent to the consideration of the legal issue:

- the Waddenzee case is not directly relevant because it covered the possible effects of a development on a European designated site at the screening stage under Article 6(3) of the Directive;
- at the screening stage the higher evidential burden referred to by GWT of "no reasonable scientific doubt" would apply;

- this stage has been completed for the scheme, leading to an Appropriate Assessment under the Directive being required and information has been produced to assist the Welsh Ministers;
- the SIAA concluded that there would be no adverse effect on the viability of the SAC Bat populations, or integrity of the SAC with regard to Bats. This was due to the distance of the scheme from the SAC, the low numbers of Horseshoe Bats recorded in the survey area and the proposed mitigation measures, and
- the conclusions of the SIAA are agreed by NRW and I am content with the accuracy of them.

8.17 It seems to me that the Waddenzee test does not apply to this case and, even if it did, the conclusions of the SIAA demonstrate that the scheme would be compliant with the Directive [2.1-2.10].

8.18 It also seems to me that GWT have also conflated the Waddenzee case with the Directive requirements in relation to European Protected Species (EPS). The issue arising here is that of disturbance to bats during the construction and operation phases. There is no definition of disturbance but relevant guidance appears to indicate effects on the species and its range rather than individuals. To my mind the judgement in the Morge case makes this clear and emphasises that disturbance effects should be considered on a case-by-case basis [2.1-2.10].

- 8.19 It is an offence to harm EPS. The Regulations allow for derogation licences to be issued by a relevant statutory body – in this case NRW. Paragraph 6.27 of the Regulations sets out the tests that must be satisfied in order for NRW to grant a licence. The issue in relation to the third test (maintenance of favourable conservation status for the species in its normal range) is on “the balance of probabilities”. The guidance states that the severity of the tests varies, depending on the severity of the effects. WG has set out its mitigation strategies for the relevant species and NRW is content with those [2.1-2.10]. The evidence advanced by GWT was that derogation licences are required for the loss of roosts, resting or breeding places. That view was opposed by WG who considered the suggestion to be unheard of, that is, for licences to be required for loss of habitat in Wales or England. This appeals to me as being logical given the difficulties that would be bound to arise with assessing and quantifying such a loss. This leads me to the view that the appropriate test, as set out in Morge case, is whether NRW would be unlikely to issue a licence. WG has set out its proposals for mitigation for the loss of bat roosts, using tried and trusted methods. NRW has considered these and the evidence related to maintenance of favourable conservation status, and confirmed that “it is not unlikely to issue a licence”. From that I conclude the matter would not be an impediment to the scheme proceeding, contrary to the claims of GWT [2.1-2.10].

The case for Marshalls Mono Ltd

- 8.20 Both sides recognise that the Marshalls’ site would be taken up by the scheme and the legal dispute arises from the efforts of both parties to secure acceptable alternative land for development. As I understand it, WG considered that it could have relied on the matter being settled by compensation but have adopted a supporting course of trying to find a replacement site. They are content that they already own suitable land, at Queensway Meadows, Newport. The company do not agree and require that site, in addition to the adjacent privately-owned block of land known as Freshwater. It argues that WG have the legal powers to purchase such land (Freshwater), in this case for their private benefit. WG rejects that legal interpretation of Section 246(1) of the Highways Act 1980. This section of the Act says: “*subject to subsection (3) below, a highway authority may acquire land for the purpose of mitigating any adverse effect which the existence or use of a highway constructed or improved by them, or proposed to be constructed or improved by them, has or will have on the surroundings of the highway*”. [2.11-2.22].
- 8.21 Of lesser importance, rises the second matter of whether WG has failed to comply with its own Circular 14/2004 which, it is claimed, stipulates that the Authority must exhaustively negotiate with affected landowners in order to reach a solution. My opinion on this secondary point is that there is clear evidence to demonstrate that considerable efforts were made by WG, but these abated when it believed that a suitable alternative site had been found, even though Marshalls were dissatisfied with the outcome. I note that discussion and correspondence continued until the end of the Inquiry. In my opinion the efforts were reasonable,

having regard to the view that the Circular is only advisory for Ministers (as opposed to Local Highway Authorities) and that WG considered that a satisfactory alternative site had been offered to Marshalls. I do not believe that this peripheral point needs further comment [2.11-2.22].

8.22 This leaves the primary impasse between the parties which comes down to what Parliament intended in drafting the law as set out in Section 246 (1) of the Highways Act 1980, a matter on which I am not qualified to judge. However, I make the following observations from my site visits and the evidence presented to the Inquiry:

- any replacement site would need to be of the same order of size as the existing and fit for heavy industry, have good vehicular access, be reasonably flat and have access to a full array of services;
- to guarantee efficient business continuity the new site must be developed before occupation of the existing, because construction of the proposed viaduct would require virtually full, continuous and unrestricted occupation of the existing operational area;
- the advanced Docks accommodation, which would delay a start of the viaduct construction, may facilitate a window of opportunity for development of a replacement Marshalls' site before occupation of it is necessary. If so, I saw no impediment to that opportunity being taken by both parties;
- the offered replacement site at Queensway Meadows appears to have the potential of satisfying the requirements in terms of location, area, topography, service provision and good industrial road access, although I accept that a few development complexities would arise but I heard no evidence to persuade me that they could not be overcome reasonably easily;
- whilst I appreciate the substantial Marshalls' local employment and industrial service benefits, I heard no compelling evidence that, to my mind, could justify, in the overall public interest, the compulsory purchase of private land to facilitate the requirements of a private company, having regard to the stern statutory test set by Parliament for the compulsory acquisition of private property;
- if it is held that the Act does convey such an unrestricted power enabling a Highway Authority to purchase private land to accommodate another private concern, it seems to me that an extreme position could arise where WG was put under continual pressure to purchase a succession of packages of private land in order to placate objectors whose land had been justifiably taken for the purpose of building the public project. Whilst appreciating this is a matter of the interpretation of law and not for me to judge, I cannot see any unbiased logic in such a measure which could become endlessly chaotic on every highway project [2.11-

2.22, 8.9].

Compensation payable for stone extraction and haulage – (O227 and O231).

- 8.23 This matter arose because an Agent representing two landowners asserted that additional compensation should be payable, first in respect of stone which would be extracted from his client's land, and in another case, that specific compensation should be paid because a part of his client's land would be used as a haul-road for construction materials, which would eventually cost the public purse less. He did not elaborate on either head of claim, and in its response, WG, understandably, did not specifically address whether, as a matter of compensation law, such payments should be entertained. For my part, I agree with WG that matters of compensation are not for a Public Local Inquiry. However, the CPO clearly allows for stone to be extracted from private land (objection 227) and hauled through a landholding of others (objection 231). I can make no further comment other than observing that these obvious construction advantages would be in the interests of the taxpayer and the general public [2.23-2.26].

The issue of equality of arms

- 8.24 The issue of an unfair advantage of WG's professional team was raised by two objectors in writing and at the Inquiry by two individuals orally, all without any detailed substantiation. It is therefore difficult to draw out relevant points on the unsubstantiated claims and I do not [2.27-2.37].
- 8.25 However, one of the written objectors drew attention to what he considered to be an inequality between WG's team of expertise and that of the Gwent Wildlife Trust. It is of significance that, at the Inquiry, the Trust only raised this issue as a minor aside presumably because of their impressive team of expert witnesses, working with a large team of Counsel who were invited, over several days and without exception, to cross-examine any WG witness they chose. They examined many. The closing of the case for the Trust (in conjunction with that of Friends of the Earth, the Campaign to Protect Rural Wales and the Woodland Trust) was ably presented by Counsel, who had drawn together advice from the large legal team. He did not present an "equality of arms" concern. In light of this, it seems to me that the claim of imbalance in respect of the Gwent Wildlife Trust, notably made before the start of the Inquiry, is obviously ill-founded [2.27-2.37].
- 8.26 The other concern arose from the Magor with Undy community representatives, who drew attention to their lack of traffic expertise. That was understandable, but both Mr McCooey and I specifically addressed a number of technical issues in order to draw out traffic related (and other) points in a way which could be understood by the lay-person and certainly, in this particular case, by those representing the community. Throughout the proceedings, WG witnesses deliberately avoided using technical jargon where possible, and where not, frequently gave every-

day examples of what they were trying to explain in evidence. The evidence in dealing with the case for the Magor with Undy residents' representative did not depart from that appropriate approach. In the case of the residents' representation, I am quite sure that none of the points they raised was unfairly responded to by WG [2.27-2.37].

- 8.27 No concerns about individuals' rights generally, or Article 6 compliance in particular were made at the Inquiry, nor was any request made to me or Mr McCooey for funding or other assistance, which was, as a matter of course, given by us when we considered it to be necessary throughout the Inquiry. It is also evident that there was a huge amount of written correspondence between the parties in the run-up to the Inquiry, which explained WG's position on the issues with clarity. Mr McCooey and I deliberately and consistently investigated the material points on all the objectors' cases in an inquisitorial way. I am perfectly satisfied that none of cases being presented by the parties who raised the issue of equality of arms were weakened by the lack of professional representation [2.27-2.37].

The issue raised by the agent for Mr William Jones of land being included in the CPO which would be distant from the scheme.

- 8.28 This is a relatively straightforward issue of whether the Acts place any distance limits on the inclusion of land in the CPO for construction purposes. Other than raising the question, the Agent did not substantiate his concern. WG response was simply that the Highways Act 1980 or the Acquisition of Land Act 1981 impose no distance limits for land needed for construction purposes. For my part, I confirm that the land in question would be needed for purposes connected with the construction of the scheme and its acquisition for those purposes is justifiable in the public interest. It follows that the land could justifiably be included in the CPO should WG's legal opinion be held to be correct [2.38-2.39].

The case of Cycling UK claiming that the preparation of the scheme has breached the Active Travel Act 2013

- 8.29 Cycling UK assert that the scheme's preparation, in not addressing, testing or selecting non-road-based modes of transport as a solution is in breach of the Active Travel Act (Wales) 2013. WG point out that the Act required WG to take reasonable steps to enhance the provision for walking and cycling in so far as that is practicable in the exercise of its functions. Its functions included the processing of a road-based solution to the current road-based problems of the M4, and that it had done, but only after over 100 different options (including non-road-based solutions) had been considered at the earlier public consultation exercise, which was the appropriate stage to consider such strategies [2.40-2.41].
- 8.30 No background or material substance was presented to substantiate the legal point of Cycling UK. Further, under examination, the Cycling UK witness admitted that, in making his criticism, he was unaware of all the earlier assessments undertaken following the 2010 consultation exercise

leading to the conclusion that a non-road-based solution would be inadequate. WG set out the extent to which the draft Orders had catered for the provisions of the Act and the Inquiry evidence it had adduced. In terms of the extent to which the scheme would interfere with walking or cycling, it seems to me that the draft Orders compensate almost wholly for the interference that the scheme would cause to existing cycling and walking facilities and beyond that extend the facilities by creating six new public rights of way totalling over 3 km in length and a further shared-use path about 1 km long [2.40-2.41].

- 8.31 I am also aware that WG engaged collaboratively on active travel with the two affected Local Authorities. In addition, it responded positively to the calls of objectors in relation to local active travel projects for incorporation in the scheme and before the publication of the draft Schemes and Orders had engaged with bodies associated with active travel. They have worked collaboratively with Network Rail. To my mind these significant proposals constitute taking "reasonable steps to preserve and enhance walking and cycling" within the overall context of the scheme [2.40, 2.41].
- 8.32 I am conscious that the development of the scheme was based on objectives set by Ministers for a motorway, a special road which prohibits walking and cycling by law. WG would have been aware of that and that the demands for improvement of the M4 corridor or the fulfilment of objectives could only marginally be met by non-road-based solutions [4.18, 4.19].
- 8.33 The effect that active travel schemes would have on the case for the scheme was a common theme of objectors throughout much of the Inquiry. I am satisfied that the evidence of WG in rejecting such notions is accurate. I also note that the earlier public consultation exercise considered active travel and non-road-based measures, and it seems to me, that the Minister, in deciding to proceed with the road scheme would have been aware of that. For the avoidance of doubt, and now from the evidence at the Inquiry, it is absolutely clear that non-road-based modes would not address the current problems of the motorway. A conclusion that is consistent with the Minister's earlier decision to pursue a road-based solution and matter recently confirmed in WG published policy which clearly says that *it will build a M4 relief road around Newport* [4.30, 4.33].

The issue of interference with human rights

- 8.34 The issue of Human Rights was raised in general terms by an objector, who subsequently withdrew his objection, and in slightly more specific terms by Mr Tyrone Broome representing the residents of Llandevenny, a hamlet located to the west of both the A4810 and proposed motorway [2.42-2.44].
- 8.35 In Mr Broome's case, he was concerned with the effect of road traffic noise on Llandevenny and that proposed noise-preventing barriers

alongside the motorway needed to protect others would reflect noise back in the direction of Llandeenny and thereby affect the human rights of locals. His understandable concern was countered by the compelling evidence that demonstrated that, with the proposed barriers in place, noise at Llandeenny would largely remain as a product of traffic on the near A4810 (and not the proposed motorway) and that the predicted levels would fall well short of the regulatory criteria set to justify public expenditure on protection measures for the hamlet. I am totally satisfied with the accuracy of that evidence. It is also clear that the scheme has been advanced in accordance with the law and established legal processes and would, if constructed, be in the public interest. For my part, in such circumstances, I cannot see that the scheme could be said to be unlawful in the terms expressed by Mr Broome [2.42-2.44].

Environment (Wales) Act 2016

- 8.36 Objectors made the point that the scheme would be inconsistent with the Act in that it would not enhance or maintain biodiversity. The purpose of the Act is to promote sustainable management of natural resources, which is linked by Section 3 to the objectives of maintaining and enhancing the resilience of ecosystems so as to achieve sustainable development and contribute to the achievement of the well-being goals. The test set out in Section 6 is: *"a public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions"*. It seems to me that the critical issue in relation to this test is that is not an absolute one – the authority to seek to maintain and enhance biodiversity so far as consistent with the proper exercise of the functions [2.45-2.57].
- 8.37 Section 7 of the Act requires Welsh Ministers to take all reasonable steps to maintain and enhance the species and habitats included in the biodiversity lists and to apply the principles of sustainable management of natural resources. Of note, the duty is couched in terms of taking *"all reasonable steps"* [2.55].
- 8.38 Therefore, to my mind any deleterious effects would not lead to an automatic failure to comply with the Act. As stated above this report must consider the effects on biodiversity and natural resources, both positive and negative, in order to reach a conclusion on the duties under the Act. The Section 7 duty can be considered on a species by species basis, in combination with consideration of the effect on the Gwent Levels biodiversity and habitats. I am conscious that the Ecosystem Services Report prepared by WG, after requests by GWT and others, is of assistance in this regard.
- 8.39 The other relevant issue of dispute was the current unfavourable condition of the Gwent Levels SSSIs. Although all agreed the SSSIs were in poor condition, GWT and RSPB argue that favourable condition should be assumed as the baseline for assessment. WG took the opposite view, saying that the future must be assessed relative to the actual current

conditions. In my view, this comes down to whether the widely accepted planning principle of taking decisions based on real rather than imaginary scenarios should apply. No evidence was presented to justify a departure from that principle and, therefore, I conclude that the objectors' suggestion lacks any justification why such a departure should ensue, and should be set aside [2.45-2.57].

The Well-being of Future Generations Act 2015

8.40 At the Inquiry much was asserted about the Act, yet a paucity of logical argument was advanced by the many who considered that the scheme should be stopped because, in their view, it did not comply with the Act. Relevant sections of the Act are set out in the evidence of WG which threw a spotlight on the important provisions:

- the definition of sustainable development;
- the well-being goals, and

- the sustainable development principle (also known as the 5 ways of working) [1.9, 2.58-2.64].
- 8.41 WG was able to demonstrate, without serious challenge, a cross-connection between the WBFG Act 2015, the Planning (Wales) Act 2015, PPW 9 and the emerging PPW edition 10 which is now undergoing public consultation. WG highlighted that schemes in Wales must demonstrate that they comply with the sustainable development principle which means 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. Acting in accordance with the sustainable development principle means that the body must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs. Over the duration of the Inquiry, the maturing view tended towards definitions of sustainable development and the sustainable development principle which recognise that the achievement of the well-being objectives is bound to encapsulate a balancing exercise. The principle refers to the need to take an integrated approach by considering how (amongst other things) well-being objectives impact upon each other, in particular, where steps taken by the public body may contribute to meeting one objective but may be detrimental to meeting another. Throughout WG's evidence, it concentrated on proving that the scheme was in accordance with the stipulations and was therefore lawful [2.59-2.62].
- 8.42 There was widespread confusion on the correct application of the provisions of the Act but what was abundantly clear to me was that:
- WG had given due recognition to its well-being objectives in progressing the scheme and in setting out its policies, priorities and practices, and
 - a long-standing succession of policy documents and programs have established the Government's definite proposals to build a M4 relief road around Newport and that includes policy formulated and published subsequent to the WBFG Act 2015 [2.61-2.63].
- 8.43 The latest "Prosperity for All: The National Strategy" (CD 5.2.10) has been prepared on the basis of the WBFG Act 2015 and the well-being objectives of the Government. It establishes the Government's spending priorities and includes a commitment *to deliver a significant improvement to the M4 around Newport* under the *United and Connected* theme and well-being objective 11. That is the latest in a clear series of government commitments to build a strategic road scheme of this nature, that is, one that would deliver a significant improvement to the M4, bearing in mind that very few alternatives would [2.64].
- 8.44 One part of the business of this Inquiry was to consider the merits of the scheme and its disadvantages in meeting the well-being objectives set by

WG. In this regard it seems to me that the Act recognises that every scheme programmed by Government may contribute to meeting some objectives but not others. In saying that I am conscious that this opinion seems to run counter to the Future Generations Commissioner's apparent interpretation that all of the well-being goals must be given equal weight in each decision. For my part, I find this proposition of equal weight to be unrealistic in the real-world situation of a major infrastructure proposal, particularly one that has reached a very advanced stage of delivery. I draw attention to that in an effort to assist Ministers in undertaking the final balancing exercise where all the competing considerations are weighed in the balance in order to reach a final decision [2.61, 4.37-4.55, 6.847-6.888].

- 8.45 It is evident that WG has set out its well-being objectives which are designed to maximise its contribution to achieving each of the well-being goals. The evidence argued at the Inquiry leads to the view that it is the actions of WG as a whole that should meet the goals and objectives and should not be based on a single project alone [4.37-4.55].
- 8.46 What is clear is the duty on public bodies (set out in Section 3 of the WCFG Act 2015) to carry out sustainable development and publish well-being objectives that are designed to maximise its contribution to achieving each of the well-being goals. This appears to me to be an important point. All of the well-being objectives taken together would maximise the public body's contribution to achieving the well-being goals it has set. The actions to be taken by a public body must include taking all reasonable steps (in exercising its functions) to meet the objectives. Whilst it is not for me to interpret the Act, it appears that there is an element of flexibility by the use of the term "reasonable" in Section 3, which allows scope for judgement to be exercised [4.37-4.55].
- 8.47 Against that background the Commissioner, in writing, and other objectors alleged that the scheme represents an out-dated decision-making process that is not in accordance with the Act. With that in mind I make the following observations:
- following its coming into force, no part of the WCFG Act requires work on a project to stop and the process under the Act to be followed retrospectively from the start;
 - no party to the Inquiry suggested the Act contains a transitional provision, there is no suggestion that exceptionally its effect is retrospective and there appears to be no supplementary provisions or transitional arrangements in place requiring such actions;
 - in addressing this point WG has drawn attention to the fact that sustainable development (the bedrock of the WCFG Act 2015) has been at the heart of government decision-making since 1998. It has been a long-standing statutory duty under the Government of Wales Act to promote sustainable development. This, WG says, has been adhered to in the development of the scheme and the

analysis of the available options;

- WG evidence compares the decision-making process under WelTAG 2008 and the recent WelTAG 2017 in detail, and in compelling argument, demonstrated that the scheme would comply with the sustainable development principle. No party seriously counteracted its arguments;
- during the Inquiry period, and subsequent to her initial submission to it, the Weltag 2017 guidance was launched and endorsed jointly by the Cabinet Secretary for Economy and Transport and the Commissioner. The guidance explicitly recognises that scheme judgements must involve an assessment of the positive and negative impacts on well-being; that potential impacts may be beneficial for some but adverse for others; and that the resultant reports should present a summary of the impacts and the potential to realise benefits and mitigate adverse effects (CD 6.1.28);
- that latest guidance seems to me to align itself well with the Commissioner's evidence to the Ecology, Local Government and Communities Senedd Committee, of 1 March 2018. I agree with WG that the only way to read that evidence was of a change of view to the Commissioner's early written evidence to the Inquiry of 13 September 2017 and an acceptance that a balanced judgement in assessing effects under the different elements of well-being under Section 2 of the Act is quite permissible (ID259) [6.847-6.885];
- the scheme would cause serious effects to the Gwent Levels, its historic landscape and ecology, but ecological mitigation in the Levels and at Coed Mawr would offset much of that in the long-term. On the other side of the balance, it would, at a stroke, substantially improve the environment for residential areas of Newport and regenerate the docks. In my view, it cannot be argued that the scheme does not have substantial environmental benefits or significant economic advantages across South Wales. This is pertinent in reconciling the Commissioner's advice to the Senedd Committee with the evidence of WG to the Inquiry [4.159-4.160, 4.185, 4.166-4.168, 4.200-4.205, 4.209-4.211, 4.237-4.242].

8.48 Given the stage that the scheme has now reached, I cannot agree that the public interest would be served should the process be restarted in order to use the Future Generations Framework for the delivery of Projects. This was developed and submitted during the Inquiry and, whilst of interest, left me doubting whether all concerned understood the binding procedures for major highway schemes, and in particular, the very advanced stage reached in this case. Neither the Commissioner, nor anyone from her office attended the Inquiry, so this and other observations could not be explored. However, having regard to the very thorough and legally compliant preparation which had been undertaken

for the scheme, I heard no evidence to persuade me that preparations should be restarted. In my view that would be a grave retrograde step in terms of the public interest. At this juncture I can do no more than to draw attention to my several concerns in these regards [4.37-4.55].

- 8.49 In contrast, WG set out its convincing assessment of how the scheme would contribute to the well-being goals adopted by Welsh Ministers and subjected those arguments to public Inquiry examination. Throughout no serious challenge emerged that was not convincingly rebutted by WG [4.37-4.55].
- 8.50 It is evident that the “five ways of working” defined in the Act have also been followed by WG in the early and later stages of the scheme development. It is obvious that the scheme looks to the long-term needs of the strategic transport network for Wales, taking account of evidence as to the how the issues affecting transport today could be addressed without compromising the ability to meet long-term needs. This report addresses the detrimental long-term consequences of the scheme, which is an important part of the sustainable development principle, whilst there is abundant evidence that WG has set its well-being objectives and explained how the scheme addresses them. I fully endorse their claim that the thorough way in which the scheme has been developed on all fronts complies with the WCFG 2015 Act (CD 1.23.1 paragraphs 39 – 44), [4.37-4.55].
- 8.51 Having regard to all the relevant evidence from all parties, and whilst not judging the legal issues involved in the interpretation of the WCFG Act 2015, I conclude that the criticism that the scheme is contrary to the WCFG Act is, to my mind not proven. In my view the scheme would accord with the sustainable development principle, it has been properly prepared in accordance with the new legislation and nothing arises from the Act, or from the Inquiry opinions of those opposing it, which alerts me to a potential impediment to the scheme proceeding [2.58-2.64].

Wildlife and Countryside Act 1981

- 8.52 Section 28G of the Act identifies a duty 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 features by reason of which the site is of special scientific interest [2.65].
- 8.53 Objectors such as GWT and RSPB, and to a certain extent NRW, have claimed that the scheme fails this test because it involves the loss of SSSI land. WG countered that by saying whether or not a proposal involves the loss of SSSI land is not the appropriate test and Section 28G must be read as a whole whereupon it is clear that the duty is qualified in two respects. Firstly, what is required are reasonable steps, and secondly this is also conditional on being consistent with the proper exercise of the authority’s functions.
- 8.54 It appears to me that this was, to an extent, explored in the judgement

of the Friends of the Earth challenge to the M4 CaN Plan (CD 4.5.45). The judge accepted that the process leading to WG decision to adopt the Plan was focused on the potential harm to the Gwent Levels SSSIs and the mitigation of that harm. It is evident that the route had been chosen to minimise impact on the SSSIs and a comprehensive mitigation strategy had been developed. I therefore focus on whether or not WG has taken reasonable steps consistent with its functions to further the conservation and enhancement of the relevant features. This will involve an assessment of the mitigation strategy that has been developed as part of the scheme and any remaining adverse effects.

8.55 I am conscious that, consistent with the Highways Act duty (and function) to address the needs of the national system of through-routes in Wales, WG departed from an earlier line to keep the route as far to the north as practicable, thereby minimising the adverse effect on the Gwent Levels. It appears to me that the proposed extensive mitigation for the scheme, developed in collaboration with NRW, including provisions for long-term maintenance, could certainly be considered as taking reasonable steps. This report involves an assessment of the mitigation strategy that has been developed as part of the scheme and consideration of any remaining adverse effects. These remaining adverse effects must then be weighed against the case in favour of the proposal and in the context of the proper exercise of WG's highway functions in order to assess compliance with the Section 28G test [2.65-2.70].

8.56 NRW also relied on paragraph 5.4.4 of TAN 5 requiring authorities "to apply strict tests when carrying out functions within or affecting SSSIs, to ensure that they avoid, or at least minimise, adverse effects". To my mind this adds nothing to the substance of the Section 28G (2) and as guidance has less weight than statute in any event [2.69].

The case for the Principle of constructing a new motorway and modifying the existing M4

8.57 I now turn to consider the case for building a M4 relief road at Newport and if one is justifiable, whether the published scheme satisfies the test of being expedient in the public interest, before moving on to compare it with the alternatives advanced by objectors. To start I deal with the significant body of objections and support expressed to the Inquiry.

Objections

8.58 There are a large number of objectors to the scheme, mostly from non-statutory sources, although many statutory-land objectors maintained their opposition at the close of the Inquiry. Most of the mass of objections arose from four self-promoted, but coordinated campaigns dedicated to the prevention of a road being constructed over or near the environmentally sensitive Gwent Levels and the 5 SSSIs, SACs and dwellings located therein or thereabout. Much Inquiry time was devoted to hearing those objections, spearheaded by that of the Gwent Wildlife Trust, in association with Wildlife Trusts Wales, the Woodland Trust and

the CPRW, but the RSPB which attracted most support for its campaign, choose not to appear. A number of individuals, who also were dedicated to the preservation of the Levels appeared, some more than once, to express personal concerns or concentrate on particular themes with a view to negating the case for the scheme. The majority of those objections, and others, remained unsatisfied at the end of the Inquiry [1.6-1.8].

- 8.59 A significant number opposed the proposed motorway because, in their opinion, the cost of constructing it would remove from Wales the finances needed for other public programmes. However, as explained at both Pre-Inquiry meetings and as set out in ID1 and ID2 and WG rebuttals, the distribution of Government money is not a matter for any Public Local Inquiry.
- 8.60 A few objectors opposed the scheme because they considered, as a matter of principle that major road schemes should not be built, or other non-road based national transportation policies should be developed instead. None adduced any evidence to illustrate the effect on the existing motorway or local road network should the scheme be abandoned, or seemed to recognise the fact that it is established Government policy to build a relief road. Whilst drawing attention to those and a small number who advocated severe traffic-restricting policy options, it is inappropriate to make further comment on them since, arguably they are not matters which should have been before the Inquiry. If that was not the case, none of those objectors adduced any compelling objective evidence to demonstrate that the current problems, let alone the future ones could be addressed satisfactorily by means other than a high standard relief road [1.6-1.8, 6.362].
- 8.61 Similarly, a number of objectors, most recognising the existing problems on the current M4, generally advocated a public transport solution for them. Again none produced any compelling evidence that the current problems could be addressed satisfactorily by these means or presented details of such schemes. On the other hand, WG produced sound evidence to show that insignificant relief would be afforded by an amalgam of all planned public transport improvements. That evidence demonstrated that, if all programmed public transport improvements could be delivered overnight that would only be equivalent to about 2 or 3 years growth on the motorway. That analysis did not account for any surge of additional traffic that is likely to burden the motorway and local roads further from the removal of Severn Crossing tolls. In this regard, I am satisfied that the evidence is clear that the congestion on the M4 could not be addressed by public transport improvements singularly or in combination, and that the delays associated with yet another further analysis (of public transport ideas) would only cause the acute problems to fester appreciably [6.362-6.368, 6.382-6.385].
- 8.62 A number of objectors contended that the scheme is incompatible with the WCFG Act 2015, an opinion initially expressed in a written submission by the Future Generations Commissioner for Wales. A band of objections

rallied behind that view but none elaborated significantly on it. I have dealt with that earlier, primarily as a matter of legal interpretation from paragraph 8.40-8.51 above.

- 8.63 The FSB, opposed the scheme on the grounds that it could not be built as early as an alternative but as evidenced at the Inquiry this belief is misguided [6.889-6.898].

Withdrawn objections

- 8.64 At the end of the Inquiry about 50 individual objections and 672 campaign objections had been formally withdrawn or had been found to have been duplicated earlier. Annex E records the details.

Support

- 8.65 There is widespread and detailed support for the scheme. It includes steadfast support from a local MP and widespread support from the local authorities across South Wales, ranging from the English border in the east to Swansea in the west. Support came from other authorities, individuals, industry and business as far west as Milford Haven, with a concentration in the Swansea Bay region and from the valleys. No local authority objected to the scheme, a fact to my mind that is remarkable for such a large project, given the very wide range of responsibilities of such authorities. The following Local Authorities expressed strong support for the scheme:

- Cardiff City Council
- Newport City Council*
- Monmouthshire County Council
- Rhondda Cynon Taff County Borough Council
- Caerphilly County Borough Council and
- Neath-Port Talbot County Borough Council

[1.11-1.12, 5.24-5.35, 5.36-5.44].

*During the course of the Inquiry, the City Council diluted its earlier enthusiasm for the published scheme but confirmed the need for an M4 relief road and that the Inquiry was the appropriate forum to consider the best means of alleviating the problem on the motorway, in a balanced way [5.26].

- 8.66 Some local authorities explicitly considered the scheme to be essential for the prosperity of future generations and set out, in terms, why they considered that to be the case. Others considered that the scheme would be compatible with their own transport plans and programmes, all matters which can be afforded weight in the balance leading to the

overall decision [5.30-5.35].

- 8.67 Support from industry and commerce, with responsibilities for mass employment widespread across South Wales, is strong and detailed. At the Inquiry and taking the opposite view from the Federation of Small Businesses, the CBI and South Wales Chamber of Commerce expressed support for the urgent construction of the scheme. In that regard, I conclude that the published scheme could be constructed before any of its rivals and that there is compelling, deep and widespread support for the scheme from industry and commerce. In my view, the magnitude of and reasoning behind such support carries significant weight [5.1-5.23].

Regard for local and national planning policies and the requirements of agriculture

- 8.68 Mindful of the test explained at paragraph 8.7 I now weigh up the extent to which development of the scheme has had regard to local and national planning policies and the requirements of agriculture. First, on local planning, I am satisfied that the scheme, which straddles both Newport City and Monmouthshire County Council areas complies with the local transport plans and policies of both authorities and its route has been protected by the LDPs of those authorities [4.20].

- 8.69 In terms of agriculture, because good quality fields would be lost and a substantial number of farms would be affected, the effect of the scheme on agriculture would be adverse. Nevertheless, where individual farms or holdings are affected, I am satisfied, from the comprehensive appraisal undertaken of each farm, that suitable measures have been advanced to reduce impacts where justifiable and practicable. Modifications to the draft Orders have been sought to address the concerns and most accepted. I am satisfied that:

- the package of proposals aimed at reducing agricultural impacts is appropriate;
- there is a need to acquire areas of agricultural land;
- about 17% is classified as being best and most versatile land, and where areas classified as best and most versatile land is affected that impact is inevitable given the needs to build the scheme to national alignment and other standards and merge the proposed and existing lengths of the M4 [4.151-4.158].

- 8.70 Having regard to the proposed modifications, the collaborative agreements reached, the minimisation of land-take, the appropriate agricultural and farmstead access proposals and the long-standing alignment considerations that led to a reduction of severance to individual holdings, I conclude that due consideration has been given to the requirements of agriculture consistent with the need to address the overriding requirement to solve the traffic, economic and social problems caused by the serious deficiencies of the M4 around Newport. I note that no statutory body with responsibilities for agriculture objected to the

scheme [4.151-4.158].

- 8.71 I conclude that the scheme is broadly compatible with some local planning policy and has had extensive regard to the requirements of agriculture.
- 8.72 The degree to which the scheme has had regard to the requirements of national planning policy is more complex. The large list of planning policies set out in WG's case, and in some cases the interpretation of law, in Section 4 of this report, are pertinent for consideration of the scheme [4.21-4.59].
- 8.73 Historically, it is clear that a road scheme to bring about a significant improvement to the M4 around Newport has been the mainstay of several WG planning, road transport investment and prosperity policies for some years. In particular, the Wales Spatial Plan is a strategic framework to guide future development and policy interventions, emphasises the importance of connections between Cardiff, Bristol and London and internationally in order to attract inward investment and a high skilled, high paid workforce. Importantly this policy document identifies the need to alleviate congestion on the M4 around Newport as a key strategic issue and the scheme does that. Of further note, the scheme is still integral to the latest policy thinking, as set out in: *Prosperity for All: the national strategy for Taking Wales Forward* which clearly establishes as government policy: *delivering a significant improvement to the M4 around Newport*. The evidence submitted to the Inquiry indicates that the only feasible way of achieving this is to construct a strategic road of sufficient capacity to substantially relieve the current motorway and enable the economy to grow. The scheme would achieve that in all respects but a number of the alternatives put forward to the Inquiry would not. In regard to need, I note that the scheme is regarded as being essential in the national interest and has been included in the Programme for Government of WG under its United and Connected theme.
- 8.74 Whilst the scheme could therefore be regarded as being expedient in these latest policy terms, it would run counter to other policies, including those associated with cultural heritage, landscape, ecology and nature conservation, as well as environmental limits [4.30, 4.37-4.51] [objections in Section 6].
- 8.75 With the substantial accommodation works proposed for Newport Docks and the definite access improvements that would be provided by the proposed motorway and the Docks Link Access Road, it is also clear that the scheme would accord with the relevant national policies concerning it and UK Docks. It would enhance the access to the Docks, in particular for heavy goods vehicles, whilst not disadvantaging rail access [4.34-4.36, 4.56].
- 8.76 In my view policy conflicts from a large scheme are inevitable but local and national policies, which by definition cover all manner and scale of

development, must allow exceptions to the general requirements of the policy, particularly in a case where substantial public benefits would accrue. An example of this is the apparent conflict with paragraph 6.2 of TAN15 in respect of flooding. The scheme is not part of local authority regeneration initiatives or employment objectives but is an important piece of national infrastructure. Similarly only part of the route covers previously developed land but PPW recognises that essential infrastructure can exceptionally be located on such land. I am satisfied that the potential for flooding has been recognised and protection budgeted for and that essential development is permissible anyway. I am content that no serious conflict with TAN15 or a serious flooding threat would arise but this is an important matter to which I draw attention, as well as the need to enhance the local flood defences at Stephenson Street, Newport [4.21-4.23] [6.10].

- 8.77 I conclude that the scheme would satisfy several national planning policies, a matter to which weight should be afforded but it would run contrary to others, and in my view, some counter-weight should apply because of that. I have considered whether the scheme has had regard to local and national planning policies in reaching my overall conclusion of whether or not the scheme should proceed.

The objectives for the scheme

- 8.78 During the extensive public consultation exercises in 2010 and 2012 the public collaborated in identifying problems and solutions for transport within the M4 corridor, following which 15 local transport policy objectives and 12 local environmental objectives were set by Ministers for the scheme. The Inquiry examined whether or not the scheme could achieve some of these objectives [4.17-4.19].
- 8.79 In my judgement it is clear that, of the 15 local transport planning objectives, the scheme would strongly meet 13 of them but be less effective in encouraging a cultural shift to more sustainable travel choices, or increase choice for all people making journeys by all modes. Nonetheless, by providing improved access to park-and-ride facilities, improving the facilities for cycling and walking, reducing chronic congestion which traps local and national buses, the scheme would go some way to facilitate a local cultural shift in travel behaviour. I therefore conclude that the scheme would meet 13 of the local transport objectives very well, but 2 of them only moderately well. I further conclude that the achievement of those objectives would deliver a substantial and long-lasting public benefit for South Wales and deserves considerable weight to be given to that achievement [4.18].
- 8.80 Of the 12 local environmental aims and objectives I accept that the scheme would meet 10 of them well, but in my view, would struggle to deliver in respect of diversity and cultural heritage. I saw no compelling evidence that these objectives would be enhanced by the creation of a new motorway, other than the possible argument that the removal of a traffic congestion blockade (and the perception of one) would mean more

people from elsewhere travelling into Wales and appreciating the culture and heritage it has to offer. The removal and relocation of a listed building, and impacts on Llanfihangel Rogiet Conservation Area, the standing stone at Undy and the historic landscape of the Levels would have a negative effect on cultural heritage [4.19].

- 8.81 The design of the large viaduct over the Newport Docks was praised by the Design Council for Wales and I consider that its impact on the townscape of Newport would be positive. However, the scheme would have an adverse effect on the landscape of the Gwent Levels, both visually and in terms of its historic significance, and to a high degree, that would be a permanent adverse effect. Both these factors should be given appreciable weight in the assessment of balance [4.98, 6.660, 6.664].

The Traffic Case

The objectors' views on traffic

- 8.82 A few objectors considered that there is no current problem on the M4, or that one would develop in future. A number of objectors appeared to rely on the same background evidence to support their contention that traffic growth had stopped some years ago (the peak-car hypothesis) and the scheme could not, therefore, be justified. Others claimed that the traffic predictions used to justify the scheme were erroneously high. I found absolutely no evidence to support either assertion but compelling evidence indicating the opposite. The evidence of continuous growth was obvious, overwhelming, constant and professionally explained. Much of the thrust of the evidence of the strategic objectors floundered on their erroneous traffic assumptions [6.433-6.442, 6.426, 6.417, 6.410, 6.378-6.386, 6.372, 6.363-6.366, 6.341, 6.351, 6.354-6.359, 6.334, 6.331, 6.330, 6.325, 6.888-6.890].

- 8.83 I give much weight to the proven traffic growth occurring on motorways, in particular on the M4 at Newport. This shows that traffic growth on the M4 at Newport is currently year-on-year continuous, a fact that is commensurate with other substantial evidence of ever increasing delays and uncertainty. Congestion has been prevalent for years and is growing [4.74, 4.75, 4.76 Tables 1 and 2].

Supporters' views on traffic

- 8.84 I found WG evidence that the natural demand for east-west travel along the M4 desire-line at Newport is greater than the actual throughput (flows which the motorway can accommodate) to be totally consistent with the evidence of occasional complete gridlock and frequent congestion along both the A4810 and A48 SDR onto which delayed drivers divert. This occurs when motorway queues stretch leading drivers to diverge from their natural desire line (M4) to the less suitable urban network of Newport, in order to get through. This is evident on the ground at peak times. In my opinion that is an important point because

as traffic grows further, either naturally or from the removal of tolls, the delays on the M4 and thereby A4810 and A48 SDR could extend significantly. In other words, when a network is running at overflow capacity, further loading could lengthen queues disproportionately. The effect of that would be longer queues, economic disadvantage for individual companies and the nation, diversion onto less satisfactory roads, more air pollution and additional accidents and incidents. Supporters of the scheme were unanimous in complaining about existing traffic conditions causing regular and unpredictable congestion that delay deliveries, and cost money, time and business reputations [5.25-5.35, 5.45-5.46, 5.48, 5.50, 5.52, 5.53-5.73].

General views on traffic

Accuracy of traffic data

- 8.85 An objector introduced evidence of recent trends, highlighted by the National Travel Survey, indicating that national travel by car had stabilised but I am content that the traffic model makes appropriate allowance for this. The national model used predicted growth on Welsh motorways of 6.9% between 2010 and 2015. The reality was that between 2011 and 2016 (when data was available) the proven growth rate was 12.3% for the length between Magor and Castleton. From this, I conclude that the national traffic model used does not overestimate traffic on the Newport stretch of the M4 [4.87-4.90, 6.550-6.559, 6.568-6.570].
- 8.86 The scheme was prepared on the basis of the latest UK Government national forecasts, as required by national practice and I am satisfied that these make allowances for both local planning data and a fall in trip rates where appropriate. A number of objectors concentrated their arguments on historic trends of traffic overestimates from road schemes but these were related to the national forecasts of 1989 and 1997 and to schemes that were fundamentally different from that of the M4, which effectively would run in the same relatively narrow corridor as the existing road it relieves. No party brought forward compelling evidence criticising the latest national forecasts that had been deployed in the justification of this scheme or challenged the model from which future predictions were made. I accept that the road traffic and public transport models validate well and form a sound basis for predicting future road flows and public transport patronage [4.69-4.73].
- 8.87 Objectors, in general, tended to concentrate their arguments on addressing the lesser but still serious problem of the current-day traffic situation, rather than grasping the need to design major road schemes to cater for situations that would be prevalent by the set design year for the scheme, traditionally set as 15 years after opening, in this case 2037 (2039) [4.79 Table 5, 6.365, 6.366, 6.427, 6.435].
- 8.88 There can be no doubt that traffic growth on the M4 has continued over recent years. Applying the published national traffic growth forecasts of

the Department for Transport, conditions on the M4 would be appreciably worse by the design year of 2037 (2039). Those current unsatisfactory conditions would substantially deteriorate not only on the motorway in terms of traffic delays, crashes and incidents but also on the local urban roads in and around Newport which would also need to take even more strain [4.79].

- 8.89 On the question of the use of the variable demand traffic model (VDM), the evidence shows that WG has applied current guidance on the use of VDM in an objective and consistent manner. Contrary to objectors' assertions, induced traffic (in the order of 6% of future flows) has been taken account of, as well as the relieving measures which would come about from the A465 Heads of the Valleys Road improvements and all the other public transport schemes currently being considered in the Newport area [4.69-4.72].
- 8.90 A number of objectors suggested the scheme would generate significant levels of induced traffic (that is traffic that previously would not occur but with the motorway in place would be attracted onto the network because of the improved conditions), two claiming that the new road, which would have a large theoretical reserve of capacity relative to the current situation, would consequently be swamped within a year or so of opening. However, all backed away from challenging the details of WG's traffic analysis and none claimed to be able to construct a traffic model or put a figure on the volume of induced traffic, or future flows [4.69-472].
- 8.91 Similarly, I am satisfied from the outcome of the traffic model that traffic induced by the scheme has been assessed and included in the projections which accounts for such movements and that the quantity of carbon generation from induced traffic had been included in the evidence presented to the Inquiry. To my mind the view that carbon from emissions on the network with the scheme in place would be less than without it because it would eradicate stop-start conditions is entirely logical. There was no detailed or compelling evidence to the contrary.
- 8.92 I am satisfied that no compelling evidence was presented which demonstrated any deficiency in the traffic model, or the projection from the traffic model of the future traffic and loading on the network with and without the scheme in place. At the Inquiry, and following cross-examination of witnesses, I am satisfied that, whilst a few objectors asserted that the traffic growth predictions had been exaggerated, no objector seriously challenged the traffic evidence presented on behalf of WG. I conclude that it was demonstrably sound throughout and established the basic need for immediate improvement of the M4.

The traffic implications of removing the Severn crossing tolls

- 8.93 A model developed to reflect the increased traffic on the M4 following the removal of the tolls established that without the scheme in place flows on the existing road would increase by about 14% at Magor reducing to about 3% at Brynglas. With the scheme in place the 2022 flows at Magor

would increase by about 11% on the new section of motorway, decrease to 10% west of Magor, reducing further to about 5% west of Newport Docks [4.76, 4.77, 4.78 Table 2, 4.79 Tables 3a, 3b, 4, 5 and 6, 6.330, 6.356-6.358, 6.372, 6.397-6.400].

- 8.94 Some objectors sought support from the fact that the model appears to show virtually no increase at Brynglas. WG countered that claim by proving that the model reflects the traffic-restrained nature of the road and that as a consequence the model assigns the additional M4 corridor-demand onto less suitable roads around and through Newport. However, the important point is that model shows that the demand would remain high within the overall east-west Newport corridor. Another strategic objector thought that without the scheme in place traffic congestion would become so bad on the M4 as to force people off the road altogether and onto the public transport system. There was much debate on that point but no evidence came forward to show that would happen. To my mind, even if it did, that would mean that the M4 would have reached saturation before then, thereby further strengthening the case for the scheme which even on current flows is sound [4.79, 6.330, 6.334, 6.356-6.358, 6.372, 6.397-6.400].
- 8.95 With regard to the extra traffic which would use the M4 once the tolls are removed, first, I note that the projected increased flows are mathematically logical. They reflect similar experiences of toll removal elsewhere and there was no tenable challenge to the outcome from the traffic model. I am satisfied with the explanation of suppressed demand keeping traffic away from Brynglas and burdening local roads. In my view it clearly follows that the undoubted pressure from increased toll-free congestion would exacerbate current delays, increase frustration, crashes and incidents, all of which would negatively impact the economy.
- 8.96 In my judgement it can be concluded with certainty that the removal of tolls strengthens the traffic and economic case for the scheme; conditions would get appreciably worse on the existing M4 without it but the existing corridor would be relieved even more with the scheme in place than indicated by the early evidence to the Inquiry which did not cover the no-toll situation.

Consideration of the do-minimum situation continuing

- 8.97 It is beyond dispute that the geographical and topographical characteristics of the area from Magor to Castleton and the inadequacies of cross-section and alignment of the motorway severely restrict any effective low-cost do minimum options for improving the M4. That being the case, it is reasonable to assume that the do-minimum situation is effectively the status quo and the base against which a judgement needs to be made of the future traffic and environmental conditions which would prevail without a relief road.
- 8.98 The view of the vast majority who submitted evidence from across South Wales was that the current traffic conditions on the M4 are already

problematic throughout much of the working day. They claim these can be particularly severe, give South Wales a bad name and something needs to be done. The evidence has demonstrated that peak traffic periods are spreading and traffic already diverts off the motorway onto less suitable urban roads to avoid the current traffic jams. In the peak hours there is "pent-up" demand that cannot be fulfilled. Unpredictable "ad-hoc" incidents such as breakdowns, minor crashes and non-personal injury accidents cause additional congestion to occur, on average every 4 or 5 days throughout the year and the motorists at the Brynglas Tunnels suffer 4 "normal-traffic" jams each day. Even in the good times speeds throughout the working day are below 50 mph. These are facts [4.79 Tables 1-5, 4.80].

8.99 There was no challenge to the fact that the existing motorway is noisy and pollutes the air of nearby residents and stop-start traffic emits carbon [4.159-4.168, 5.42].

8.100 However, some took the view that the current conditions are acceptable and claimed that the current problem is only a peak period one and should be tolerated. It follows that, to their minds, low speeds throughout the working day, the high degree of incidents and queuing in the peak periods are all acceptable, although none adduced meaningful evidence to demonstrate what the conditions would degenerate to at the 2039 design year for the scheme if nothing is done [4.79, 6.323-6.324, 6.362].

8.101 To my mind, the evidence proving the persistence of current unsatisfactory conditions was overwhelming. Projecting those worsening conditions forward to the design year for the scheme would paint a daunting picture. The national traffic growth predicted by the Department for Transport shows growth up to the design year and beyond, and as demonstrated at the Inquiry, there was no reasonable evidence to suggest that traffic growth has or would abate in this area of South Wales. The best evidence presented was by WG, and from that, the magnitude of increase in traffic flows and hence the deterioration in the level of service that the motorway could offer can be appreciated [4.79 Tables 3b and 5].

8.102 I am satisfied that the evidence demonstrated that without the scheme constructed there would be:

- excessive queueing during the ever increasingly long peak periods;
- stop-start or slow-moving traffic being the norm for many hours of the day, giving rise to additional air pollution, with its knock-on effects for health and climate change;
- a significant additional dispersion of traffic from the motorway corridor into the urban area of Newport;
- an increasing burden on public transport (buses) efficiency because of the overspill from the motorway into Newport and the

delays to it;

- worsening congestion on the A48 SDR and its approach roads, frustrating the movement of industrial and commercial goods and people which it has been designed to cater for;
- an increase in crashes, and other incidents on the M4 between Castleton and Magor which would exacerbate the poor conditions, cause economic harm to the country, pollution in the urban area of Newport as traffic diverts and the potential increase in accidents, and
- a likely worsening of the perception that it is difficult to access South Wales for business, tourism and leisure purposes.

8.103 Having regard to all the evidence adduced at the Inquiry, and these factors, I conclude that conditions on the existing M4 are already regarded as being unacceptably bad to the majority of the public, industry, and authorities and would get significantly worse on the motorway and other roads in future [5.1-5.8, 5.20, 5.21,5.23, 5.26-5.35, 5.45-5.74].

8.104 There is evident need for a scheme to address the issues on this section of the strategic road network. I conclude that it follows that the traffic case for a road scheme which would relieve the existing M4 around Newport is overwhelming in the public interest.

Public Transport investment and modal shift as a solution

8.105 The Gwent Wildlife Trust drew attention to trends in Europe towards more integrated public transport systems to encourage modal-shift both in commuter and commercial traffic. However, they did not point to any schemes on the horizon that could achieve that on an east-west strategic highway corridor across South Wales. It is impossible to draw further conclusions on these theoretical ideas because they adduced no evidence to demonstrate how such measures would work at Newport, relieve the M4 and halt the year on year worsening situation. I note that 85% of UK freight is moved by road and Wales loads 250,000 tonnes of commercial goods each year onto the network. No party demonstrated how integrated public transport systems could practically address these issues. I therefore come to the only conclusion possible, that, based on the evidence, these ideas have very limited relevance in terms of addressing the current M4 problem [5.2-5.8, 5.16, 5.17, 6.142, 6.143, 6.144, 6.551, 6.943, 6.944, 6.950, 6.971, 6.975, 6.982]

8.106 The feasibility of resolving the current problems on the M4 through public transport investment and active travel measures was explored in detail during the Consultation Process. The outcome of which was that, with extensive modal-shift measures, only about 5% of current flows would be removed from the highway. The Inquiry evidence updated and substantiated that, indicating with all currently planned or speculated public transport enhancements (including the Metro, park and ride and

Rapid-Bus transport) a maximum of 5.9% reduction, which equates to 3 years growth, may be realised providing the public transport packages could be operated all at once. Some of that is included in the traffic model of the scheme which points to a growing road-based problem. However, in the real world those alternatives would not be delivered for years by which time the situation on the motorway would have worsened.

- 8.107 As explained earlier, the evidence also showed that drivers frustrated with the service the motorway currently offers already divert off it onto less suitable roads to get around blockages. In such circumstances it seems to me that any relief occasioned would be partly offset by motorists returning to the relieved motorway. Having regard to all these factors, I conclude that the problems of the M4 could not be adequately relieved by non-road measures now, let alone by the design year [5.37, 5.50, 6.972].
- 8.108 Those opposing the principle of any road improvement scheme made no attempt to analyse how the current problems would manifest themselves by the design year and adduced no compelling objective evidence that even the current problems could be addressed satisfactorily by other means. I found WG evidence that any combination of such measures would be wholly ineffective in addressing the problems on the network to be compelling. This issue, no matter how passionately resisted, received no serious evidential challenge from objectors.

The capacity and effectiveness of the scheme

- 8.109 Having concluded on the traffic demand and the ineffectiveness of non-road-based solutions, I turn now to consider the effectiveness of the scheme as proposed in the engineering evidence.
- 8.110 It is evident, and in my opinion, unchallengeable, that the scheme in providing an additional modern dual 3-lane motorway free from much local traffic and shorter than the existing M4, would add capacity to the east-west corridor sufficient to offer a high level of service well beyond the design year. The few witnesses asserting that the scheme would be overwhelmed by traffic within a year or two of opening, presented no analysis to back up that view. The compelling evidence, all pointing in the opposite direction exposed these extreme views as illogical. I conclude that there is an overwhelming need for the scheme on traffic grounds and, in being very effective in accommodating M4 corridor traffic well into the future, on the existing motorway and new one, would be sustainable on traffic grounds [6.139, 6.657, 6.665].

Funding and economic assessment

- 8.111 I note that the scheme is included in the National Transport Plan, the National Transport Finance Plan 2015 and its 2017 update. It would be funded through a combination of UK Government borrowing and WG transport budgets. Some of the additional works which were found to be necessary within the Newport Docks would be paid with a contribution

from WG's economic development fund.

- 8.112 The cost of the scheme, including works within the Newport Docks, at Q4 2015 prices, inclusive of risk and optimism bias allowance, is about £1,321 million. From the evidence presented, I am satisfied that this figure includes reasonably substantial sums set aside to accommodate risks which might arise, not least because of the nature of the ground in the Gwent Levels, and an appropriate allowance for the underestimation at this stage of its development. A few objectors asserted otherwise, but their criticisms were either clearly shown to be wrong by WG or were exposed under examination as lacking experience. In my judgement no weight should be given to such criticisms [4.139,6.119, 6.410, 6.449, 6.455, 6.460].
- 8.113 I note that the scheme is incentive based, the contractor would share cost over-runs, it has undergone intensive survey work, including ground surveys and has been the subject of a concentrated Buildability Report. All of which lead me to the conclusion that there is no current reason to doubt that the cost of the scheme would overrun relative to its 2015 price base. However, there will always be risks associated with a project of this size and complexity although, from the evidence presented, in my view significant over-runs are improbable [4.139].
- 8.114 I conclude that the estimated cost of the scheme is reasonable at this stage of its preparation. Using central traffic growth parameters, the traffic model developed for the scheme, the latest values of time and applying national economic assessment policy standards, the basic direct transport BCR for the scheme would be in the order of 1.56, in other words for every £1 invested the scheme would return £1.56 for the nation when assessed over a 60-year period. Should traffic growth abate the low growth forecast basic BCR would be about 1.3 and rise to 3.1 with high growth. However, all these figures ignore the economic harm which is constantly inflicted by the abnormally high numbers of delay-ridden incidents that this section of the M4 is plagued with. No party disputed that fact and no one suggested that they would stop. In my view, with the jump-up in toll removal flows and any growth, the incident rates would increase. With the current traffic burdens these have been broadly assessed to add 0.36 to the basic BCR figures and, in my view, they are certain to continue. This realisation would increase the basic BCR to about 1.92 [4.130-4.133, 4.135, 4.136, 4.137, 6.133, 6.134, 6.441, 6.419, 6.421].
- 8.115 An objector argued that the value of journey time parameters in South Wales should be assessed as lower than that of the UK as a whole upon which national calculations have to be made. Assessing the value of the BCR using a variety of local time values would not accord with government policy or advice. Such an approach would not be part of the standard assessment of BCR's which are intended to give the decision maker a mechanism for making consistent and rational comparative national decisions.

8.116 The CBI and others presented evidence that the perception of unpredictability and absolute unreliability arising from the inadequate existing motorway had adverse impacts on a whole host of businesses across Wales which had the effect of constraining the Welsh economy. They were not alone, many local authorities, business and industrial concerns saw the benefits of the scheme to local economies well clear of Newport and Cardiff. This current negative economic impact and the unchallengeable fact that the motorway is subject to an abnormally high level of economically damaging unrecorded incidents, indicated that the BCR, as quoted in evidence is too low. That proposition was countered by objectors who criticised the reliability of the cost of the scheme, that VAT had been excluded from the BCR exercise and construction inflation was higher than general inflation. These assertions were shown to be based on hearsay and not supported by evidence and I give them no weight. For its part, WG established compelling reasons why:

- VAT is not included in the BCR calculation;
- construction inflation over recent years had not exceeded general inflation and was unlikely to, and
- cost over-runs would be restrained by the incentivised engineering contract which had been let on a limited risk and profit-sharing basis, a point hitherto not appreciated by some of the objectors despite it featuring heavily in the evidence in chief of WG [WG 1.1.1- para13.4, WG1.6.1 -para3.11, PIQ55].

8.117 I conclude that the positive BCR of 1.92 is a reasonable estimate of the true worth of the scheme from a traffic-economic perspective.

8.118 WG also put forward evidence based on national research, academic studies undertaken for the UK Government, and standard national guidance, which they claimed demonstrated that the scheme would accrue wider economic benefits that inflate the BCR. Objectors brought forward no evidence to show that national guidance had been departed from, and in the main relied on a governmental SACTRA report of 1999, and personal academic research, as opposed to the more recent acclaimed Eddington and Venables Reports of 2006 and 2014. [5.10, 5.12, 5.16, 5.20, 5.66, 5.65, 6.120-6.127].

8.119 The wider economic benefits claimed by WG and many supporters of the scheme are difficult to prove categorically, although some may well accrue over time. What is abundantly clear is that:

- the removal of the congestion and importantly the perception of travel difficulty along the M4, can, in my view, do nothing but good for the economy of South Wales, a matter emphasised by many in commerce and industry as travel costs for South Wales industry and commerce would reduce;
- the majority of studies and literature presented to the Inquiry advocated or supported the concept of wider economic benefits

accruing from major road schemes, and

- there was no evidence to satisfy me that the two-way road concept would harm South Wales; such a notion is contrary to government policy and difficult to sustain when a motorway corridor already exists for use [4.134, 4.135, 6.119, 6.121-6.123].

8.120 I conclude that the current problems on the existing M4 impose an identifiable penalty on the Welsh economy and their removal would, in all probability, increase the economic prosperity of the area. A mass of persuasive evidence from representatives of companies resolutely endorses such an opinion. Clearly the road would provide an excellent road-based transport corridor along the gateway to two thirds of the Welsh economy. The economic impediment of the existing M4, which has been recognised for 25 years, would be removed but I draw attention to the relative uncertainty that the additional benefits would accrue. Having regard to all relevant points I conclude that the scheme would offer at least sound value for money and, in all probability, good value for money.

Road traffic noise, construction noise and vibration

8.121 I am satisfied that noise calculations were undertaken comprehensively and in accordance with the Noise Regulations, they have had regard to toll removal and that the scheme would improve the noise environment of residential properties in Newport. Whilst noise levels vary by the year, as a generality, in the opening year, about 16,000 properties would experience a lowering of road traffic noise, whilst 4,000 properties would experience an increase. In the opening year, a significant noise benefit of greater than 1 decibel would be experienced at about 12,500 properties whilst about 2,250 properties would have a significant increase in noise [4.165, 4.168].

8.122 I conclude that, overall, the scheme would provide meaningful noise benefits to the population of Newport, thereby enhancing their well-being and delivering an environmental gain of significance. In particular, WG's 2017 well-being objectives 5 and 6 of promoting good health and well-being for everyone and building healthier communities would be met in Newport. However, that could not be said for smaller communities closer to the proposed corridor although the adverse effects would generally be significantly less than the positive gains [4.165, 4.168].

8.123 I am also satisfied that noise absorbing materials would be appropriately used on the carriageway and noise shielding barriers would protect populated areas. Other than at Llandevenny, no party requested extensions of these barriers, but I am content that they could not be justified there because of the relatively low traffic noise that would affect the hamlet, most of which would emanate from the existing A4810 [6.541, 6.542].

Air pollution and air quality

8.124 I am satisfied that the air quality calculations were undertaken properly. The scheme would result in a significant improvement in the air quality at

properties alongside the M4 and in urban Newport, with about 29,000 properties benefiting. Although 1,600 properties would be subjected to a lowering in air quality no limits would be breached. Air Quality Management Areas in Newport would benefit from the scheme. The scheme would introduce traffic into a relatively traffic-free area across the Gwent Levels. Air quality would diminish in those areas, although I am satisfied that air quality limits or critical loads would not be exceeded at any receptor, or any unacceptable ecological impact arising. I note that the air quality in the Langstone-Llanmartin Meadows SSSI would benefit from the scheme. The Severn Estuary SAC/SSSI/SPA Ramsar Site NO_x concentrations would be above the limit value, but this location is not sensitive to nitrogen deposition [4.159-4.160].

- 8.125 I conclude that, overall, the scheme would lower pollution and provide widespread and significant air quality improvements to the population in the majority of areas affected by the existing M4 or traffic diversions off it in and around Newport, thereby improving human health and helping their well-being. In my view this represents a significant environmental advantage of the scheme which should not be underestimated. In particular, as for noise, WG's 2017 well-being objectives 5 and 6 of promoting good health and well-being for everyone and building healthier communities would be met in Newport, However, that could not be said for smaller communities closer to the proposed corridor, although the adverse effects would generally be less [4.159-4.160].

Carbon

- 8.126 There was a consensus that major road building and emissions from queuing traffic produces carbon in the atmosphere. WG case was based on bespoke and detailed calculations that showed that the initial capital carbon expended would be neutralised over time by reductions in carbon emissions arising from:
- removal of congestion which is current and would increase at Brynglas from the removal of the Severn crossings tolls;
 - shortening of journey lengths, and
 - removal of traffic from less commodious and hilly routes onto a free-flowing modern highway, using which engines would perform at maximum efficiency.
- 8.127 Objectors, some producing top-down calculations, argued that those figures underestimated the case, that induced traffic would add to the overall carbon burn and disturbing soils would release carbon. Another objector thought WG evidence overestimated the amount of carbon that would be generated. Some claimed that the scheme would send the wrong signal to others that road building is acceptable to governments and harm might be done to vulnerable parts of the World that are susceptible to the effects of global warming. I draw attention to this last point but recognise that road building is government policy. A further objector drew attention to what she considered would be an incompatibility between building the motorway and the requirement of the WCFG Act to promote a low carbon economy, whilst another considered that the road would be at odds with the climate change

commitments of WG [4.161 - 4.164].

8.128 To my mind and having considered the competing views of witnesses the evidence and its examination demonstrated the key points that:

- WG's calculations were detailed and thorough and included for induced traffic but may have been somewhat conservative (overestimating the generation);
- broad-based top down calculations used for the assessments of a large range of national infrastructure projects should not preferred over bespoke detailed calculations for a particular scheme;
- the GWT's varying evidence relating to the quantum of carbon that the scheme would generate was both higher and lower than the central estimate presented by WG;
- there would not be widespread release of greenhouse gases from the soils of the Gwent Levels because of the lack of cuttings for the main line. Further the land has been worked and farmed for centuries, whilst the effects of ongoing maintenance work and induced traffic had been taken account of in calculations;
- the scheme would alleviate congestion and eradicate excessive emissions from stop-start traffic. It would enable free-flow conditions to prevail on both the existing and proposed motorways beyond the foreseeable future. In my view claims that the motorway, in more than doubling of the capacity of the existing M4, would fill up and create excessive emissions within a year or so of opening are completely without merit;
- traffic reassigning from the current network to a shorter, non-congested network is bound to burn less carbon and no objector was able to challenge the point made by WG that in drawing traffic away from less suited roads carbon emissions would reduce;
- the detailed calculations used the precise VISSIM model but its application of the effects of burning carbon from acceleration and deceleration were side-lined in favour of average speeds on the majority of the network affected by the scheme thereby underestimating what happens on the ground;
- the effect of the scheme was minor in Welsh highway terms and of no consequence on the global scale, it would not adversely affect WG carbon reducing policies or frustrate its public ambitions for meeting reduction targets, and
- the scheme would, perhaps uniquely, be carbon-neutral over time and, if there is an acceleration in the uptake of electric vehicles, that would put back the date of achieving carbon neutrality for the scheme but would be beneficial for the overall environment anyway[4.161-4.164].

I conclude that WG carbon related evidence is sound and overall the Inquiry established the points set out above to my satisfaction.

The Environmental Assessment

- 8.129 The ES and its Supplements are set out in the case details, with PIQ 154 describing the purpose and rationale of each document. These were published progressively to accord with the successive publications of the draft Schemes and Orders and I am satisfied that their respective publications accorded with statute. I am also satisfied that the ES and its Supplements were prepared and published in accordance with European Directives, the requirements of the Highways Act 1980, DMRB and relevant UK legislation and Regulations [1.15, 4.245-4.252].
- 8.130 I am satisfied that the required environmental information has been provided in the prescribed form. The consultation with statutory authorities and non-statutory bodies has been undertaken at each stage in the process. Their contributions and comments at all stages have been recorded and itemised in PIQ 149. I am satisfied that WG has had due regard to the comments made in taking matters forward. I have taken the responses into account in reaching my conclusions. At the Inquiry there were no significant changes to the ES or its Supplements.

The Statement to Inform an Appropriate Assessment (SIAA)

- 8.131 WG concluded at the screening stage that there could be likely significant effects (LSEs) on designated nature conservation sites of European importance and therefore the Welsh Ministers, as the competent decision-making authority, would need to undertake an appropriate assessment of the effects. They have complied with the Habitats Directive, UK Habitats regulations and DMRB by providing information to assist the assessment in the form of an SIAA [4.257-4.260].
- 8.132 The SIAA was published in March 2016, with a commitment given to update it with the results of a 2105-16 wintering bird survey and other updated information necessary to reflect ongoing scheme development. The updated SIAA was published in August 2017. NRW was consulted on both documents and confirmed that the submitted information is adequate and fit for purpose. I have taken NRW's views into account in reaching my conclusions. A separate SIAA Addendum was also published in August 2017 in reaction to fresh proposals within Newport Docks. Again, NRW was consulted on this addendum and I have taken its views into account [4.245-4.252].
- 8.133 I am also satisfied that the SIAA has been publicised in accordance with the statutory procedures throughout the Inquiry process. The report, its findings and the comments made thereon have been taken account of in reaching my conclusions [1.15].

The Effects on Nature Conservation Interests

The treatment of Protected Species

- 8.134 Before and during the Inquiry, the GWT, CPRW and RSPB and others raised concerns about the impact of that the proposed scheme would have on European Protected Species (EPS) and other nationally protected species. In assessing this important issue, it is pertinent to note that NRW, WG's statutory adviser was satisfied with the proposed mitigation measures/strategies for water voles, great crested newts, badgers and dormice, after confirming that it was:
- content with the relevant baseline analysis contained within the ES;
 - aware that the survey work to inform the ES has continued through the lengthy PI period, and
 - engaged with the discussion and finalisation of the species mitigation strategies for the affected species [6.27-6.47].
- 8.135 Of all the species, dormice as a threatened species in severe decline, merit a special mention. The scheme would affect dormice because of the partial disturbance of 1980s woodland planting on the existing M4 which accommodates a strong local population. To compensate, WG and NRW propose habitat enhancement of sites adjacent to the areas of loss, new habitat creation in suitable locations associated with the scheme and the identification of a suitable translocation site at Coed Mawr²¹. This package should avoid the need for captive breeding in zoos or similar but that would be also be available as an option of last resort. The essential mitigation package is an environmental commitment of the scheme (Commitments - 201, 202 & 210). During the Inquiry, it emerged that the objections primarily related to potential impacts without mitigation and, in recognising that and the extensive proposals advocated, I find the conclusions of NRW to be sound and agree that the impact of the scheme on dormice can be adequately mitigated [4.230, 6.43-6.47].
- 8.136 The habitat of the water vole would be significantly affected by the scheme but only insofar as it would interfere with about 2% of the reed and ditch network. But the medium to long term the damage would be largely neutralised by the extensions of the reed and ditch network, their improved shapes and better water quality. NRW are not expressing any opposing views and I am mindful that about 15% of the reed habitat network across the Levels is currently subjected to significant dredging impacts each year. Given that only 2% of the Levels would be affected by the scheme I am satisfied that the integrity of the water vole population would not be threatened by the scheme, a species which would benefit from an improvement in water quality that the scheme should bring in the medium term. There was no persuasive contrary view expressed to the Inquiry. I conclude that the integrity of the water vole population would not be threatened by the scheme [4.231, 6.31, 6.190].
- 8.137 GWT argued that the otter surveys were inadequate to inform the necessary mitigation approach. NRW was content with the survey

²¹ Details of these proposals are set out in the Dormouse SOCG and Mitigation Strategy. New habitat creation/enhancement would be at locations such as the Tata site and proposed woodland planting areas.

information and the ES in this regard. The surveys found no evidence to suggest any otter holts would be affected by the scheme, despite earlier surveys having found a holt close to the route in Newport Docks. NRW also confirmed that there would be no requirement for an EPS licence and it is clear that a detailed otter mitigation strategy would be undertaken as required by environmental commitment 135. This would include mammal proof fencing along the length of the scheme and the provision of mammal underpasses at suitable locations. As otters are mobile, the route would be surveyed again prior to any construction in order to confirm the approach to be undertaken and I am content with that approach [6.30].

- 8.138 I am convinced that the scheme would include adequate protection for otters and sufficient crossing points to ensure that any linkages between the population of the River Usk SAC and that of the Gwent Levels would be maintained. WG confirmed that a precautionary approach had been taken to the assessment of the effects on otters in the SIAA in that these linkages had been assumed to occur. I note that NRW had no objection to that [6.231-6.246, 6.248-6.252].
- 8.139 NRW had concerns about the lack of available detail associated with the works in Newport Docks. A separate consent would be required from Newport City Council for these and NRW would be consulted on any application. Despite the concerns of GWT, NRW is content that this is an appropriate mechanism for the consideration of these matters. From the evidence, and having regard to the views of NRW, I conclude that this approach is reasonable and there is no basis for a sustained objection on these grounds. In my view the material objections of GWT²² in this regard have all been addressed [4.254-257, 6.25, 6.247, 6.249-6.251, 6.253-6.255].
- 8.140 All the parties agree that the scheme would have adverse significant effects on bats, during construction and operation but WG considered that must be weighed in the balance when considered against the public benefits that would arise from the scheme. They prepared a detailed mitigation strategy to address the impact on bats recognising that the mitigation of severance would be limited. NRW has agreed that all reasonable mitigation measures would be incorporated into the scheme, but that residual adverse effects would remain [4.236, 6.39-6.42, 6.174-6.188].
- 8.141 NRW has confirmed that EPS licences would only be required for disturbance or loss of roosts and would not be required for loss of habitat. Compensation measures for the loss of roosts based on tried and trusted methods approved by NRW and Natural England were clearly set out in WG evidence and included the use of bat boxes and bat barns.
- 8.142 The designated SAC for bats is well away from the scheme and no convincing evidence emerged to show that the integrity of those sites would be affected by it. NRW also confirmed that the evidence indicated

²² Mr Liles and Ms Rich

that the favourable conservation status of bats would not be affected by the scheme. The evidence was that the population of bats in this area is low, as borne out by the limited number of roosts affected by the scheme. The scheme would be relatively close to existing major industrial infrastructure, a busy network of roads and on the edge of the built-up area of Newport. In this regard it differs considerably in nature from the M6 in Cumbria, which was referred to in a study by Professor Altringham and upon which he based much of his evidence.

- 8.143 NRW confirmed that there is no impediment to the granting of licences in respect of bats. Having regard to the above, I conclude that the adverse impact that the scheme would have on bats should be weighed in the final balance for consideration against the benefits of the scheme.
- 8.144 GWT (Mr James Byrne) raised the issue of potential effects on the European Eel (international – very high value) as a result of the scheme in his written submissions. WG did not respond specifically to this point. The ES concludes that there could be slight or moderate significance of effects as a result of the scheme, given the low percentage of reens to be replaced. It is proposed that eel passes would be constructed on all new sluices/structures constructed. The impact would then be negligible and the significance of effect would be slight at all time scales. This is not a significant effect [4.212].

The Effect on the Gwent Levels SSSIs

Inspector's Note:

In this section I address the remaining concerns of NRW mindful that GWT fielded an impressive array of experts in their respective fields all of whom were passionate and dedicated to promoting the interests of nature conservation and wildlife. However, I draw attention to an important point here that applies to many of its ecology witnesses. They were not all called to give evidence and mainly provided critiques of WG evidence. It is not known how much of the evidence, if any, had been read by the witness in making their comments. They could not be cross-examined but cross-examination of WG witnesses was allowed.²³

Alongside GWT, the RSPB, whilst not taking part in the Inquiry and being subject to cross-examination, did make extensive written contributions and attended sessions on environmental commitments and several site visits. The written representations included the objections of the Bumblebee Conservation Trust. Several other objectors referred to the impact on the Gwent Levels in general terms and I deal with all such objections here.

- 8.145 WG deployed a precautionary approach in the ES and accepted that in respect of the land-take, there would be a significant permanent impact on the Gwent Levels SSSIs²⁴ (PIQ05). This would be contrary to legal requirements and policy protection for SSSI land. In quantitative terms, 105 ha of land equalling 1.96% of the SSSIs would be permanently lost together with 2,702 m (around 2%) of reens and 7,676m (around 2%) of ditches [4.210].

²³ The exceptions being Mr Bakere, Mr Boyce, Prof Altringham and Mr Liles. Mr Jon Davies for WG was repeatedly cross-examined on all ecology topics.

²⁴ Paragraph 5.3.5 of CD 1.18.2 & paragraphs 87 – 90 of CD 1.23.1

- 8.146 However, WG proposed a comprehensive package of mitigation measures. In quantitative terms, 131.6 ha of land is identified for mitigation in the SSSI Mitigation Strategy in the three locations at Tatton Farm, Maerdy Farm and Caldicot Moor (ID186 Revised). However, two of these locations are within SSSIs already. One is currently in use as arable land and the other is lacking in SSSI features. The proposals would revert the land to SSSI quality by a process of arable reversion, reinstatement of infilled field ditches and appropriate management. Importantly, much of this land is already in WG ownership and so mitigation works would be implemented as early as possible (commitment 215). Approximately 33 ha of land has also been included in the CPO for bird mitigation. This land would also be available to provide suitable habitat for other species and I deal with this in more detail in my conclusions on the objection of RSPB below [4.211-214].
- 8.147 The claims of objectors that the mitigation is doomed to fail are not supported by NRW. NRW advances no objection to the SSSI Mitigation Strategy on the basis of loss of coastal grazing marsh. WG responded to objectors that this type of mitigation is typically quite straightforward in contrast to some other habitat types (like ancient woodland) that are impossible to replicate. Successful local examples such as Magor Marsh Reserve and Newport Wetlands were advanced, as well as monitoring studies from successful arable reversion and grassland enhancement projects elsewhere²⁵. In my view no convincing criticism of this evidence was made other than reference to the results of generalised studies of all types of mitigation. This illustrates a common failure of many objectors to refer to the evidence and particular circumstances of this case in objections. I consider more complicated reversion mitigation below, as well as the critical role maintenance of all mitigation measures would play [6.1-6.8, 6.17-6.19 GWT and RSPB objections for example].
- 8.148 At this point, I draw attention to the Ecosystem Services Report²⁶ (ESR) submitted to the Inquiry. There is no statutory requirement to prepare such an assessment nor is there any statutory guidance on the methodology to be used. WG consultants undertook this task in response to objectors' criticisms about the absence of such evidence before the Inquiry. I have studied the methodology and conclusions reached which led to the view that there would be a net benefit over a 100-year period arising from the scheme, including its mitigation. It seems to me that the important point is that in financial terms, the level of ecosystem services benefits and dis-benefits would be very low (at £6 to £7m) compared to the BCR benefits (calculated at £1.8 to £2.5bn) of the scheme. The economic influence of the effect of the scheme on ecosystem services would therefore be positive but insignificant, a point that was drawn out by a number of objectors who believed the opposite [4.232-235, 6.299-6.321].

²⁵ Attached to Welsh Government rebuttal – Ref WG/REB/OBJ0270.16 – GWT/Byrne

²⁶ ID 186

- 8.149 I consider that the ESR provides a valuable overview of the scheme looking at the four broad habitat types affected and it is appropriate to take account of the mitigation and pollution control measures proposed as part of the scheme. NRW has done so and concluded that they would be broadly effective. In my judgement there was little evidence that the GWT witnesses had considered the proposed mitigation measures in detail, relying instead on general studies and their own experience elsewhere. No persuasive evidence to support the claimed indirect effects was advanced by them. Their concerns regarding the ESR methodology were not subject to any cross-examination, unlike WG witness whose evidence was tested in this way. There being no set methodology to follow, I consider that the use of methods adopted in other similar assessments of ecosystem services was, in the circumstances, the best option²⁷. There were no site-specific surveys possible given the stage reached in the process. GWT did not explain the basis or provide any analysis of how its own assessment of the effects and monetary figures were derived. The baseline information makes little difference to the assessment of long-term effects on ecosystem services, and the fact that the SSSIs are in an unfavourable condition therefore makes little difference to the assessment. Overall, I consider that the ESR is a useful document that was compiled in accordance with relevant guidance and methods used in studies elsewhere.
- 8.150 During the Inquiry objectors were critical of WG on a number of reen related issues. The ratio of one-to-one replacement was stipulated by NRW in the interests of maintaining a balanced drainage regime and, in my view, the higher ratio sought by some objectors was neither practicable nor desirable. For my part it is difficult to criticise proposals that comply with NRW's requirements and I do not. Similarly, the control of motorway run off discharges has also met with approval from NRW [6.213].
- 8.151 In its evidence NRW provided examples of reen replacement success and failure, in contrast with GWT who referred only to poor examples but failed to provide the reports they relied upon for scrutiny. From the evidence adduced it is obvious that reen replacement can be successful if undertaken in accordance with best practice. Nevertheless, it seems to me that NRW's remaining concern about the time-lag that may result from the iterative process is a genuine one which would have to be weighed in the balance when reaching a decision on the scheme [6.1-6.8, 6.19, 6.210-6.214].
- 8.152 I turn now to the evidence of Mr Boyce who appeared on behalf of GWT in relation to the impact of the scheme on invertebrate species in the reens and ditches, the assemblage of which is the main qualifying feature of the Gwent Levels SSSIs. There was no dispute that the condition of the Gwent Levels SSSIs is unfavourable and no evidence of any likely

²⁷ The monetary values were derived from the work of Morris and Camino and used because, in their words, they provide the most appropriate benefit transfer function for the UK case.

improvement was supplied. The ES, taking a precautionary approach, assumed that all the reens and ditches support the full assemblage of SSSI features when patently they do not. I note that GWT's witness confirmed that poor results had been obtained by him previously, yet perversely to my mind criticised the surveys undertaken to inform the ES for obtaining similar poor results. I can understand why that criticism was not supported by NRW, who, in my view, rightly raised no objection about invertebrates [6.265-6.274].

- 8.153 WG demonstrated to the Inquiry detailed measures that would be taken to ensure that the aquatic inter-connections in the reen network would be maintained both during the construction period and long-term. These measures are set out in the Buildability Report, which is part of the ES. WG pointed out that the NRW witness stated to the Inquiry that the mitigation proposals are the best that they could possibly be (ID 259). This is an important endorsement but that level of agreement makes NRW's remaining concerns about the impact of the scheme on the SSSIs difficult to understand [6.1-6.19].
- 8.154 The first issue is the quantum of SSSI land affected and the Glan Llyn junction land-take in particular. ESR Table 17 sets out the amount of SSSI land that would be lost and the amount of SSSI mitigation land that would be provided. Overall there would be a net increase in of 41.87 ha of land performing SSSI functions plus recently purchased land from Tata for bird mitigation. In my view that total would not be an insignificant betterment of the SSSI area and must be considered when assessing the balance of the effect of the scheme on the SSSIs. In that context, I also draw attention to the fact that only 2% of the SSSI land area would be affected and the area of land affected at Glan Llyn would be appreciably less than NRW had calculated and based its evidence on at the Inquiry⁹. NRW did not question the need for this junction to serve the strategic development areas south of Newport which are currently being developed. I consider that the Glan Llyn junction would be essential and that its layout and land take in the SSSIs would not be excessive, given the route selected for the motorway, which was as far north as practicable. I am aware that NRW did not provide any explanation of how the land within the SSSI could have been avoided and WG provide examples of further decisions made with SSSI avoidance in mind, such as siting as many of the WTAs outside the SSSIs as possible [6.1-6.8].
- 8.155 Although indirect effects on the interconnected reen network were claimed by NRW in closing, it signed SOCGs stating the water quality and pollution prevention measures would be suitable. Furthermore, its witness accepted that there would be no indirect effects on other SSSIs as a result of the scheme. I appreciate that a catastrophic series of events could cause the drainage system to fail, but this would be extremely unlikely given the safeguards that have been included in the complex systems proposed. In this context, my earlier consideration of the appropriate legal interpretation of the Section 28G test concluded that it is not an absolute prohibition of harm. Crucially the amount of land lost has to be considered within the context of the scheme, the condition of the SSSI land to be lost and the proposed mitigation in order

to reach a judgement as to whether reasonable steps have been taken. I conclude in the context of this scheme that reasonable steps have been taken and that objections based on the quantum of SSSI land lost should not carry significant weight [6.256-6.264, 6.275-6.286].

- 8.156 I accept that there would be a time lag for proposed mitigation to take effect, which varies depending on the type of mitigation. The ESR allows a reasonable worst-case delay of 5 years for farmland, 8 years for wetland restoration and 35 years for woodland. This is acknowledged in the ES and ESR, leading to larger short and medium-term effects. That said, I note that WG has committed to progressing some mitigation works on land in its ownership early in the programme, and presented the Inquiry with examples of other methods to accelerate the process where possible. There was also some evidence that immature planting next to woodland was quickly colonised by dormice (PIQ 106). I highlight here the critical part that maintenance of the proposed mitigation works as promised in the environmental commitments would play in addressing the concerns of objectors regarding their eventual success [6.2, 6.5 6.299-6.321].
- 8.157 NRW also introduced the issue of the ultimate imbalance of reens between the Caldicot and Wentlooge Levels. Only 2% of the reen and ditch network would be affected but six times more than that is currently subjected to cyclic de-silting of the channels and cropping one of the banks each year. All of the removed reens would have been subject to this cyclic disturbance with possible temporary adverse consequences for wildlife and habitat. Suggestions to address this imbalance have been made by WG and I consider that these represent reasonable solutions that should be investigated further²⁸. No convincing ecological basis for NRW's concerns was advanced. The overall ratio of 1:1 for replacement watercourses would be achieved. Given the small percentage of the network that would be affected, the variations in width of reens and ditches, detailed design including the introduction of berms, iterative monitoring processes and the reuse of materials from the existing reens within the new sections, I conclude that the combined efforts of NRW and WG should prove successful in the medium term. I am persuaded that the effect of the scheme on the reen network, whilst noticeable, would not represent a serious long-term impact on the Gwent Levels. In these circumstances, I recommend that less weight is given to this issue [6.2, 6.8].
- 8.158 In my view WG downplayed the severance effects of the scheme claiming that these effects would be slight in the long-term but, there would be exceptions to this general picture. The severance effects for bats would be moderate and significant in the long-term (Bats SOCG ID 104). The evidence of BCT and GWT drew attention to similar effects for invertebrates, especially Shril Carder Bees. I have considered the effects on bats separately and conclude that the effect on invertebrates would be

²⁸ See paragraphs 243 and 244 of ID 259, paragraphs 2.3.10 & 11 of ID 61 revised and environmental commitment 199.

ameliorated to an extent by the proposed mitigation measures. Additional habitat creation for Bumblebees is proposed and the maintenance of reed connections and provision of mammal tunnels under the proposed motorway would maintain connections for aquatic invertebrates and mammals. I acknowledge that in certain cases the proposed tunnels could be lengthy. However, the design provides for increased headroom which would address the concern regarding tunnel length discouraging their use by certain species. The scheme would incorporate bridges over the Rivers Usk and Ebbw and steps would be taken to maintain riverbank connections underneath the motorway bridges, even during construction of the bridge piers (PIQ 14). This also applies to the span across Newport Docks, where connections under the viaduct would be maintained [6.2, 6.39-42, 6.174-6.188, 6.901-6.942].

- 8.159 The line of the proposed motorway would be sited as far north as possible in order to minimise the intrusion into the Gwent Levels. This is critical to avoidance and mitigation and means that the line would be close to the existing built-up area, roads, rail line and existing development. Whilst this would leave smaller areas of SSSI isolated to the north of the motorway, I consider that the impact of the scheme on the SSSIs would be reduced by this routing. I also note the other embedded mitigation by design and proposed mitigation measures as set out in the evidence. The most significant benefits of mitigation are set out in the ESR²⁹. I note that the area is already severed by the wide mainline railway tracks yet isolated blocks beyond the railway appear to have adapted well and the scheme would provide continuous connectivity for the reed network. However, overall, I conclude that severance of SSSI land would constitute a permanent disadvantage arising from the scheme [6.5].

Consideration of other GWT points of objection on ecology

- 8.160 The critique by Professor Lawton relates to general studies regarding fragmentation of habitats but it contains limited evidence related to the specifics of this scheme. It is not supported by any specific assessment or evidence regarding the ES or the extensive mitigation measures, and it is not evident that he had read the wealth of environmental information before submitting his statement. WG has endeavoured to reduce fragmentation as much as possible by the route selection and protection and mitigation measures outlined in evidence. I note that NRW has not raised any concerns with regard to protected species, other than bats [6.166-6.173].
- 8.161 I accept that there would be some effects on Magor Marsh Nature Reserve, as highlighted by Mr Bakere, but the land to be acquired for the scheme was purchased in 2012 apparently in the knowledge of it and is on the periphery of and not integrated with the reserve in terms of core activities and visitor or public access. The amount of land affected is modest. There would be additional noise impacts, but I cannot accept

²⁹ Also set out in paragraph 3.59 of Mr Jon Davies Scheme Evidence Update (1.23.7).

that these would be so severe as to impede the functioning of the distant main reserve. This conclusion is reinforced by the site's location relatively close to a built-up area and main railway³⁰ [6.189-6.193].

- 8.162 Mr Byrne's comments on the WCFG Act have been considered earlier and the points made regarding habitat loss, mitigation, fragmentation and effect on protected species are dealt with elsewhere. I have also assessed the alleged conflict with legal duties above [6.205, 6.221-6.225].
- 8.163 I am satisfied that the ES has had due regard to the assessment of cumulative impacts in accordance with relevant regulations and guidance. NRW the statutory body charged with environmental protection and management of the Gwent Levels has direct experience of the impact of previous development on the Gwent Levels SSSIs, some of which was on sites allocated for development in Local Development Plans. Having carefully considered the environmental information, NRW raised no objections in respect of the assessment of cumulative impacts [6.226-6.230].
- 8.164 Ms Rich raised concerns about issues related to the proposed drainage arrangements and potential pollution arising and affecting designated sites. Some of these points are addressed in my conclusions above. The points made by Ms Rich and others about the road's drainage causing pollution risks in the reens due to low network flows are not relevant. The proposed treatment of the discharge means that the water quality would be high. NRW agrees that the risk of breaching pollution standards is very low (ID 53). Cumulative impact assessments of the proposed outfalls to the reen network have revealed an acceptable outcome. The use of potentially contaminated material from the Llanwern lagoons has been assessed in the ES. The material would be tested for suitability and the risks of infiltration would be low because of low infiltration rates. The lower levels of pollution control in the tidal outfalls of the rivers Ebbw and Usk are justified by the much higher dilution rates. The discharges and control measures have been agreed with NRW. I have addressed Ms Rich's other concerns about the effects of the re-location works in Newport Docks in the protected species [6.275-6.286]
- 8.165 Mr Iolo Williams' passion for wildlife and concern for the Gwent Levels is understood but there is little evidence in the submission to substantiate the concerns raised. In common with the other expert commentators I note the complete absence of comment in respect of the ES or supporting information on pollution control and mitigation measures, which I found surprising especially in the light of what was requested by NRW and subsequently approved. The importance of the Gwent Levels in landscape, cultural heritage and ecological terms is recognised by all. The significant impacts acknowledged by WG and these and the other adverse effects of concern, whilst noted, must be considered against the

³⁰ The other points made by Mr Bakere are addressed below under statutory objections.

benefits of the scheme [6.287-6.298].

Flooding

- 8.166 The area of the Gwent Levels through which the scheme would run is subject to potential flooding from a breach of sea defences and therefore development within it would be subject to policy issues in PPW and TAN15 [4.180-4.187, 6.9-6.11].
- 8.167 I am satisfied that the flood modelling work based on the 2016 study by NRW proves that, with the identified defence works constructed by 2025, the scheme would not increase the numbers of properties that could potentially flood. NRW remain concerned that without any guarantees of funding to implement the "hold the line policy" the new section of motorway would increase the impact of a tidal flooding event, WG's commitment to the policy was confirmed in its draft 2018 – 19 Budget that allocated £7.5 million for flood protection measures including those at Stephenson Street, Newport. Should the scheme proceed, those works and the construction of the motorway could be coordinated by NRW and WG. It follows that there is every likelihood that the crucial flood risk management scheme at Stephenson Street would be completed by 2020. I conclude that, with those works proceeding in harmony with the construction of the motorway, no unacceptable additional flood risk would arise but I draw attention to the clear need for WG to facilitate such an arrangement to make the scheme acceptable.
- 8.168 I am also satisfied that the hydraulic models used to assess the overland potential flooding are based on well-founded science and industry standard methods. They show that whilst the scheme could locally modify the drainage regime of the Gwent Levels it has been adequately assessed. Of note, the scheme would include additional water level controls that are tried and tested. In my opinion these are bound to be effective and an improvement in the longer-term flood management practices associated with the Levels.
- 8.169 I therefore conclude that, overall, the effect of the scheme on potential flooding on the Gwent Levels would be minor and could be satisfactorily managed. I do not regard the potential of overland flooding to be a matter to which much weight should be attached in the assessment of whether or not to proceed with the scheme.

The likelihood of water pollution in the Gwent Levels

- 8.170 The construction of a major road near to a sensitive area will always raise potential risks of waterborne pollution to adjacent area WG recognises such a risk and the careful and multi-layered design of the proposed drainage system significantly reduces the potential risk of pollution, both as a result of spillage on the motorway or general run-off from it. I have taken account of the observations of objectors in respect of systems used on the strategic English network but they are clearly significantly inferior to that proposed for the M4. Should the scheme proceed, some existing unattenuated run-off would be harnessed by the system, thereby decreasing risk [6.12-6.16].
- 8.171 Some risk of re-en pollution would remain, but the drainage design and,

importantly, its continual monitoring and maintenance would significantly reduce such risks. Of importance, NRW accept the proposals and I am persuaded by its evidence and that of WG that the risk of pollution arising from the motorway would be acceptably low.

- 8.172 However, this conclusion is based on the commitment of WG to fund the necessary monitoring and to take corrective action if unhealthy trends appeared. That underpinning of the design of the drainage system is crucially important and I draw attention to that in order to make the scheme acceptable.
- 8.173 I recognise that a huge amount of work was undertaken between NRW and WG leading to a large degree of convergence of opinion and necessary action. Those agreements manifested themselves in clear statements of common ground as recorded earlier in this report. Taking the agreements reached as binding has resulted in a clear way forward on many issues and I pay tribute to those involved. I note that progress was disrupted by the unfortunate accident to NRW's main witness and this may well have prevented a further convergence of view but I am satisfied that it did not materially affect the outcome of the Inquiry which had been so expertly served up until that point [6.8].
- 8.174 In this regard I accept that development of the scheme across a floodplain would be a challenge to established Government planning policy. As I point out above, I am satisfied that this point was recognised by WG, who counter the arguments by pointing out that the scheme, as essential infrastructure, was an acceptable exception under PPW to the general prohibition made by TAN15 anyway [6.9-6.11].
- 8.175 Having regard to that, subject to the implementation of the Stephenson Street flood prevention scheme flooding of property would not be made appreciably worse if the scheme was built. . I am content that any potential breach of policy would be acceptable in the national interest. An increase in flood consequences is not a serious threat in quantum terms and that neither issue should prevent the scheme from proceeding. I am also satisfied that the construction of the motorway would not have any serious implication for future flooding of the Levels but, from the evidence presented to the Inquiry, I draw attention to the clear need to proceed with flood prevention works at Stephenson Street soon and continued vigilance in respect of the more general "Hold the Line" policy application [6.9-6.11].

Landscape and Visual Impacts (CPRW (144) – Principal objector[6.615-6.649])

- 8.176 The background to the consideration of these impacts is the decision to avoid planting along much of the section of the proposed motorway within the Gwent Levels, a decision made in consultation with NRW, Newport City and Monmouthshire County Councils. Screening of the motorway would have had an adverse impact on the registered landscape and ecological quality in the reens, through shading, and would have removed SSSI land [4.253-4.256, 4.243, 4.244, 4.237-4.242].
- 8.177 No disagreement with the results of the Landscape and Visual Impact Assessment (LVIA) of the scheme arose. I am satisfied that it was

carried out in accordance with relevant guidance and utilised appropriate scales to clearly measure the impacts. Unsurprisingly given the decision to avoid planting in the Gwent Levels (apart from screening for dwellings and heritage assets), the landscape and visual impact would be large adverse. This is a significant effect to which weight must be given [4.253-4.256, 4.243, 4.244, 4.237-4.242].

- 8.178 Having considered the evidence and comprehensively visited the area, I do not consider that the tranquillity of the Gwent Levels would be so significantly affected. The motorway would be established close to existing development and noisy infrastructure and as far north as practicable. This is reflected in the evidence confirming that the road would be in Zone B (and built-up areas) on the published Tranquil Areas Map.
- 8.179 Outside of the Gwent Levels significant planting of trees, both screening belts and areas of woodland are proposed. The LVIA concludes that the screening effects would reduce impacts at receptors within 15 years and I am content that the representative viewpoints chosen for assessment are appropriate. I am also satisfied that there would be no significant views from 74% of these locations at opening and at 88% 15 years later. The imposing Usk Bridge would obviously be a major intervention into the landscape, similar to that of the Transporter Bridge when it was constructed. I note that the design of the Usk Bridge has been independently reviewed by the Design Commission for Wales who judged it to be of high quality and that the LVIA assesses the bridge as generally beneficial. NRW agrees with those assessments [4.239].
- 8.180 I note that WG and NRW will work together to refine the detailed design of the drainage lagoons, an action that I consider to be appropriate and I also agree with the proposal to lower the major junction near the Llanfihangel Rogiet Conservation Area [4.241-4.242].

The effect on the Registered Landscape of Outstanding Historic Interest (objection of NRW and others) [4.202-205] [6.615- 631]

- 8.181 I am conscious that PPW states³¹ that the non-statutory Register should be taken into account in considering the implications of development, and that there is broad agreement on the conclusions of the ES between WG and NRW. In my opinion this is appropriately summarised in ID 155 as follows: *“the scheme would result in a long-term adverse effect on the Gwent Levels Landscape of Outstanding Historic Interest. This results from the loss of land within the registered historic landscape and the consequent severance of several identified historic landscape character areas, along with visual and aural impacts on parts of the registered historic landscape that are not physically affected.”* In my view this reasonably reflects the concerns of many objectors who have cited the adverse effects on the historic landscape.
- 8.182 The relevant guidance sets out that landscapes change over time and the

³¹ At paragraph 6.5.27

intention is not to fossilize them or prevent them being altered, but rather to manage them in ways that will allow the key historic elements or characteristics to be retained while still meeting modern needs³². I have had regard to that but the adverse effect would be significant and should be given weight.

- 8.183 In recognition of that, I am satisfied that appropriate measures have been included in the design of the scheme, including low embankments, landscape design, noise absorbing surfacing and re-locating WTAs. The Environmental Commitments require the promoter to take forward a programme of historic landscape analysis in order to offset some of the impacts³³. I note that WG and NRW have agreed that some land already within the CPO could be used for these purposes, where possible. The point made by NRW regarding the status of reens in the ASIDOHL2 process is not particularly relevant to my consideration of the Scheme and would add little to the overall conclusions. NRW requested that landscaping/screening be provided to protect the setting of the listed Tatton Farm and WG has included this in the scheme. I conclude that this should be done and that the commitments included in the register would reduce the impact on the landscape.

Inspector's Note:

In coming to the views expressed above I have had regard to all the objections from individuals raising the impact on the landscape of the Gwent Levels and on protected species, designated nature conservation sites and ecology several of whom also raise the demolition of a listed building and effect on a SAM as concerns.

Effect on Cultural Heritage

- 8.184 To my mind the relevant professional assessments and references to policy set out by WG witnesses were not seriously challenged by objectors and can be accepted as accurate. It is against this background that I reach my conclusions.
- 8.185 I note that Cadw raised 3 areas of concern about the ES but did not object to the scheme. I am content that the concerns were addressed by WG in ESS1 and I note that an important point in relation to the impact on buried archaeology is that PPW and TAN 24 state a presumption in favour of preservation in situ. I observe that Cadw has agreed a departure from national policy and that where there are known archaeological remains every effort has been made to facilitate their preservation. The Cultural Heritage Mitigation Plan (CHMP) includes for proper surveys and recording of archaeological remains, together with

³² Guide to Good Practice on using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process, Cadw/CCW/ICOMOS 2007, paragraph 1.5

³³ Commitments 66 and 74

measures for their protection³⁴. In these circumstances, I conclude that all reasonable steps to address the impact on buried archaeological remains have been taken [4.200, 4.201].

- 8.186 The standing stone at Undy lies close to the existing M4 but the new slip road at this location would mean that works would be required within the scheduled area, resulting in a large significant effect. However, I am satisfied that the scheme makes provision to retain the monument in situ with new public access and information provided³⁵. I consider that mitigation of impact to be satisfactory and I note that Cadw has not objected to it. I am further content that the effect on the medieval moated site to the east of Undy would be temporary and as a result not significant [4.190].

Listed buildings/ Heritage Assets [4.191-193, 6.467-470]

- 8.187 From the evidence presented it appears to be likely that the necessary demolition of Woodland House can be undertaken in such a way as to secure its re-location to a suitable site within the Rogiet Llanfihangel Conservation Area (subject to planning permission being granted). This would reduce the significance of effect to slight³⁶. In my view that would represent a most satisfactory way forward.
- 8.188 There would be moderate adverse effects on the settings of the Newport Transporter Bridge (Grade I), Whitson Court (Grade II*) and Tatton Farm (Grade II). I can understand that the effect on the Transporter Bridge is a subjective matter and, for my part, I consider that the introduction of another bridge, from which opportunities to view the iconic Transporter Bridge would arise and this would provide a public benefit of substance. However, the reduction in appreciation of the Transporter Bridge from views within Newport as a result of a competing structure in its background would be detrimental to its setting. Although this would be a minor and limited impact, the effect would be moderate because of the high cultural value of the Grade I Transporter Bridge.
- 8.189 The additional landscaping to screen the listed building at Tatton Farm from the scheme would represent appropriate mitigation of the effect on its setting.
- 8.190 I realise that the Second World War barrage balloon tether site at Pye Corner, judged to be a high value heritage asset because of its rarity and state of preservation, would be lost but I am aware that, in discussion with Cadw, it is now proposed to re-locate it to a suitable site nearby. That would represent a satisfactory solution to the problem, and I

³⁴ ID 148. Note: these matters are also addressed as part of a suite of environmental commitments.

³⁵ Details in CD 1.9.1. and the relevant environmental commitments are 70 and 71.

³⁶ Further details are provided in the accompanying report on the application for listed building consent.

consider that the proposal for public access to it, so that the site could be better appreciated, is to be welcomed. The significance of the effect would therefore reduce to moderate.

- 8.191 Within Newport Docks 3 non-listed buildings of historic significance would be demolished and I note that the disadvantage of this would to some extent be offset by the mitigation measures set out in the CHMP. This assessment is accepted by Cadw.

Rogiet Llanfihangel Conservation Area [4.196-198]

- 8.192 There would be direct impacts on the Conservation Area because part of the scheme is within its boundary. This part of the Conservation Area is outside the historic core of listed buildings and their settings and does not contain any buildings. The impact would be somewhat reduced by the lowering of the proposed nearby major junction. However, this has led to increased land take within the Conservation Area. I have noted that the land-take figures quoted in PIQ 97 do not include a small area of additional land north of the B4245. I have examined the evidence and am confident that WG has taken account of this additional land and associated bridge in its assessment. I have had regard to the fact that the area is currently affected by the nearby busy major roads but consider that the scheme would exacerbate those effects. Whilst the historic core of listed buildings and their settings would not be directly affected³⁷ the ability to appreciate and understand them would be reduced. Overall, I agree that the significance of these impacts (employing the DMRB methodology) would be moderate for the reasons given by WG in its evidence, which was not seriously challenged by objectors [6.57-6.59, 6.528-6.529, 7.40].

Overall conclusions in respect of cultural heritage matters

- 8.193 The significant adverse effects outlined above would be contrary to planning guidance and legislative requirements³⁸, which do not apply to this proposal being assessed under the Highways Act 1980. DMRB imposes similar tests for roads schemes. TAN 24 states that changes in the historic environment are inevitable and this can be the result of the need to respond to social, cultural, economic and technological changes. I am satisfied that the CHMP contains appropriate research and mitigation strategies covering all aspects of cultural heritage. It provides details, professional standards and methods for: archaeological excavations and watching briefs; historic building recording; study of available documentary evidence; reporting results; and preparation of archive material for deposit. The preparation and implementation of these mitigation and protection measures, etc. would be ensured by a number of environmental commitments. In my view, the importance of

³⁷ The assessment of effects on these listed buildings (including the Church) is slight adverse

³⁸ Planning Policy Wales, TAN 24, Planning (Listed Buildings and Conservation Areas) Act, Local Development Plan policies as set out in evidence.

strict adherence to these commitments cannot be over-stated. The cumulative impact of these adverse effects on heritage assets as a result of the Scheme must carry very significant weight.

Conclusions with regard to the effect of the scheme on the Statutory Undertakers

- 8.194 I note that following meetings, agreements and satisfactory letters of undertaking from WG, all objections from statutory undertakers have been formally withdrawn. I have inspected the documentation which has led to the withdrawal of all these objections and conclude that these agreements form a most satisfactory way forward.

Conclusions with regard to the effect of the scheme on Newport Docks and Associated British Ports.

- 8.195 The proposals as originally envisaged in the initial publication of the draft Schemes and Orders would have been seriously detrimental to the undertaking of the Port of Newport in terms of the restriction on shipping and the inadequate provision to accommodate displaced vessels in the South Dock. The impact that the scheme would have had on the businesses of the tenants of ABP would also have been severe and the structural security of the proposed viaduct would have been threatened.
- 8.196 Following the redesign of the scheme adjacent to the proposed viaduct and binding letters of agreement between the parties, the objection from ABP, the Newport Harbour Commissioners, the Port Security Authority and most tenants of ABP have been withdrawn. I draw attention to those agreements, and conclude that they confirm a most satisfactory potential way forward for all concerned, either separately or individually.
- 8.197 I further conclude that all the accommodation works agreed by the parties within the Docks are necessary to avoid the otherwise serious detriment to the undertaking of the Port. Any particular disadvantages to tenants could be met by the consideration of compensation.
- 8.198 I have studied the proposed engineering measures to offset and prevent the potential ship/viaduct collision and I am satisfied that these proposals, when taken together, would reduce the probability of an incident occurring to reasonably acceptable levels. The on-going monitoring and management of these facilities is so important that they should constantly be kept under review.
- 8.199 I accept that there would be an imposed height restriction on the storage of timber and some limited viaduct protection measures incorporated. However, in the interest of safety the provision of fire resistant shields to the soffit and legs of the viaduct should be considered.
- 8.200 In respect of the Docks, I finally turn to the further action needed to advance the engineering proposals and associated accommodation works and their relationship with permits and consents to enable such works to be lawfully carried out. In this regard, I have taken note of the views of

ABP and NRW and, at the end of the Inquiry, HSE and Newport City Council, all of which were positive in their respective conclusions that a way forward to enable construction to take place in the Docks was reasonably clear. Accordingly, I conclude that no apparent impediment to the scheme proceeding through the confirmation of the CPO was made by any authority but outstanding administrative actions remain [6.60-6.68].

Conclusions with regard to the tenants of ABP

- 8.201 Whilst most of ABP's tenants have withdrawn their objections some remain outstanding. The impact that scheme would have on them would be severe. However, this impact on private interests must be weighed against the overall public interest arising from the construction of the motorway. I conclude that compensation should be considered and that, the potential for continuing dialogue between the relevant parties should be explored but the failure to reach agreements should not frustrate the making of the Schemes and Orders, upon which so much widespread benefit across South Wales would ensue [6.69-6.79].

Conclusions with regard to the Port Security Authority (PSA) and the Newport Harbour Commissioners

- 8.202 I note that WG has secured agreements with both the PSA and Harbour Commissioners sufficient to enable both authorities to withdraw their objections to the scheme. The requirements and rights of WG necessary for the construction of the River Usk viaduct have also been secured. In my opinion, those rights and requirements are fully justifiable in the public interest and I conclude that the agreements reached are a most satisfactory way forward [6.80].

Conclusions with regard to the effect of the scheme on the Community Councils

Rogiet Community Council

- 8.203 I readily accept that the complex gyratory junction proposed for the eastern end of the scheme would impact heavily on parts of Rogiet and the Llanfihangel Rogiet Conservation Area, although I found no evidence that it would result in any eastward movement of the Magor Services, an unsubstantiated fear that can be dismissed. However, I can well understand the concerns of the Community Council and why it prefers Alternative 3 – the Green Route, which would largely maintain the local status quo. I have had regard to that view in concluding on the relative merits of Alternative 3 below. I also accept that the proposals for J23A, whilst, to my mind, are absolutely necessary in order to satisfy the complexities of the junction and the traffic demand, could not be regarded as being an attractive engineering feature. However, the design of the junction is necessary in order to reap the greater benefits that the scheme would bring and, mindful of the presence and impacts of the existing M48 and M4 motorways in that area, could not be regarded as having an unacceptable impact on the local community [6.57-6.59].

Marshfield Community Council

- 8.204 The relative proximity of the proposed motorway corridor to the village is bound to create an adverse effect on the village in terms of some visual impact and a perceived noise increase but I am convinced that it would be reasonable and does not present a reason to prevent the much-needed improvement of the M4 from proceeding. Having said that, I emphasise the need for rigorous control of on-site activities in the area, in order to reduce the construction impact to acceptable levels, and I draw particular attention to that.
- 8.205 I have addressed objections to traffic predictions, public transport improvement schemes, drainage and flooding elsewhere. WG accepted that the scheme would marginally increase traffic on the A48M but in overall terms that would represent a minor adverse effect on that road which evidently is dominated by the growing merging and diverging traffic to and from the urban areas of Cardiff.
- 8.206 I conclude that the adverse effects of the scheme on the Marshfield area would not be significant and present no reason to prevent the scheme from proceeding [6.701-6.714].

Wentlooge Community Council

- 8.207 The Community Council promoted an alternative upon which I have concluded below. I have addressed the issue of carbon earlier in my conclusions.
- 8.208 With regard to water quality in the Wentlooge Levels, the local watercourses currently accept unabated or unfiltered run-off from the existing motorway complex. Such flows would be intercepted and filtered by the proposed drainage system and I am convinced that water quality in this area would be improved by the scheme.
- 8.209 I am satisfied that the line of the proposed motorway has been thoroughly surveyed geotechnically so that there can be no doubt that the strength of the underlying ground has been taken account of in the design and construction phasing of the earthworks. That is evident from the evidence presented by WG and its engineering measures to counteract the obviously weak subsoil of the Gwent Levels. I also note that the scheme estimate includes appropriate allowances for risk and therefore, from the evidence adduced, I am unable to conclude that the estimated cost of the scheme is deficient.
- 8.210 I conclude that there are no issues arising from the Community Council's objection to prevent the scheme from proceeding [6.48-6.56].

Conclusions with regard to the individual statutory objections from the farming community

Those who appeared or were represented at the Inquiry

Mr S C Phillips of Green Dairy Farm, Rogiet (O232)

- 8.211 The scheme would have a major and lasting impact on Green Farm but, with only 14% of the large enterprise being permanently taken, I am satisfied that its viability would be preserved in the long run. However, it is equally clear that should the CPO be made, the effects of the prolonged excavation and haulage of embankment material, from the farmland and from Ifton Quarry would have a severe impact on the running of the farm during that time.
- 8.212 I accept that both the quarry haul-route are essential on grounds of material quality, cost curtailment and reducing inconvenience and highway safety by avoiding the mass-haulage of material which would otherwise burden the public highway network. I accept all those arguments.
- 8.213 However, I am also persuaded by the views of Mr Phillips that:
- reinstatement of the excavated farmland would ultimately result in lower quality land than its current grade 3a
 - the dry-route from the milking-parlour to the dry fields to the north should not be obstructed
 - there would be difficulties encountered during the excavation from underground watercourses and pipes, and
 - the prevention of his use of his internal winter-slurry east-west haul route would render his farm virtually unworkable in those months.
- 8.214 These are matters for compensation but I draw attention to my views of:
- the genuine desire of Mr Phillips to continue farming throughout
 - the lack of any need to interfere with his haul-route to the northern fields
 - total unacceptability of the danger that would arise from the contractor and Mr Phillips having shared use of his current slurry and utility track during the construction period, and
 - the desirability of an early construction of an alternative internal route from the slurry assembly point eastwards to the higher and drier farmland.
- 8.215 Nevertheless, I conclude that all the land included in the draft CPO at Green Farm is justifiable, permanently or temporarily, in the public interest and that the severe impact that would have on the farm could be countered by the consideration of compensation and suitable accommodation works.

- 8.216 It is not for me to make a judgement on the legal issue of whether or not Mr Phillips would be entitled to payment to reflect the haulage of stone and material excavated at Ifton Quarry through his land.
- 8.217 Mr Phillips has advanced an alternative to the published scheme, a matter upon which I have concluded below [6.98-6.104].

Messrs R, G, K, M and R Jones of New Park Farm, Castleton (O227)

- 8.218 I have addressed the impact of the scheme on dormice and the landscape elsewhere. I note that agreement has been reached which would reduce the amount of high quality agricultural land taken from New Park Farm on which planning permission for development is being sought. I conclude that, agreement on the proposed modifications to the CPO in this area would be a most satisfactory way forward by balancing the needs of the public with the local interest of the land-owners [6.105-6.106].

Miss Alicia Park, Miss Sophie Park, Miss Verity Park, Mr Adam Park (O231)

- 8.219 Whilst the objectors' desire to preserve the haul road from the Ifton quarry in its current state is understandable, it seems to me that the use of this route by 40 tonne dump trucks hauling a massive amount of material direct to the site of the proposed motorway is highly desirable in the public interest from both a safety and economic point of view. I conclude that the advantage of using the haul-road is so strong that it overrides the objection.
- 8.220 Similarly, the compulsory purchase, and ultimate conversion of arable land at Caldicot Moor to mitigate the effect that the construction of the scheme would have generally on the Gwent Levels is compelling in the public interest, although I fully accept that the removal of about 30 acres of land from the holding would be a serious loss for which compensation needs to be considered [6.107-6.108].

Mr Llewellyn Morgan Pritchard of The Beeches, Undy (O235)

- 8.221 The compulsory purchase of about 2 ha of Mr Pritchard's land is justified for the proposed motorway and the replacement access defined in the draft SRO to the Beeches Caravan Park is satisfactory. The temporary requirement for a large area of land in CPO Plots 16/3s, 16/7b, 16/9a and 16/7J is not so obviously justified but I am persuaded by the need for temporary storage by the substantial amount of excavation nearby in CPO Plots 16/3n and 16/7c and the physical restriction on storage of soil elsewhere in the near vicinity. I conclude that the land earmarked for permanent and temporary occupation at The Beeches is all justifiable, but, because of the obviously severe disruption that would be caused to the enterprises undertaken at the Beeches, the earliest notification of temporary occupation must be conveyed to Mr Pritchard and the shortest practicable duration of occupation of his land undertaken. I note that well-meaning discussions were continuing at the end of the Inquiry and

conclude that these need to continue as matters move forward [6.109-6.112].

Those who did not appear at the Inquiry.

W&M McDonald (Pencarn Farms) (O19)

- 8.222 The objection that was primarily about the adequacy of the proposed access 4/3b in the SRO was withdrawn following the promotion of a satisfactory alternative arrangement. I conclude that the objection has been satisfied by Modification 51 to the SRO, which I endorse [6.738, 6.739].

Messrs J & P Baker of Maerdy Farm (O145)

- 8.223 I note that, whilst the objection remains, modification 59a has been accepted; the area of plot 3/4d would be reduced as agreed and plots 5/3b, 5/6g, 5/3h and 5/3j would be included in the CPO as suggested. I conclude that these agreements are a satisfactory way forward.
- 8.224 In respect of the Maerdy Farmhouse and buildings, I accept that there is no justifiable basis for including this in the CPO and note that WG would look favourably on any Counter Notice to its served Notice to Treat. Whilst I make no recommendation in that regard, this administrative mechanism would seem to me to be a convenient way of satisfying both parties without being adversely prejudicial to any other.
- 8.225 CPO plots 20/2 and 20/3 are as essential for the adequate mitigation of adverse effects that would otherwise arise and, in giving weight to the views of NRW about these areas, conclude that they should be incorporated into the made CPO [6.743-6.749].

Mr Nicholas and Mrs Rebecca Clarke of Whitecross Farm (0207)

- 8.226 Whitecross Farm lies close to the noisy main-line railway and Lighthouse Road but the proximity of the proposed motorway and the diverted and elevated Lighthouse Road would cause a significant additional adverse effect on the property. However, I am satisfied that the proposed alterations to Lighthouse Road are both necessary and appropriate in this location. I am content that it follows that the relatively small CPO of land from the farm is necessary for the essential alterations to the local road network and the provision of good access to the farm, both of which also seems to me to be appropriate [6.750, 6.751].

Mrs T C F Allen of Myrtle House, Coedkernew (O211)

- 8.227 I am satisfied that the CPO is justifiable. Any injurious affection on the property could be dealt with by the consideration of appropriate compensation [6.752, 6.753].

R P Richardson (Gwent) Ltd and Mrs D Alred (O212)

8.228 I am satisfied that the CPO is needed to construct the raised embankment leading to the bridge over the South Wales mainline railway and offer some protection to properties to the north from the embankment. The scheme would be constructed along the northern flank of the sizable holdings. I am thereby satisfied that there would only be a moderate loss in amenity as a result of the scheme but there would be bound to be some disturbance which could be dealt with by the consideration of compensation. I conclude that the CPO of land from the property is fully justifiable [6.754, 6.755].

Messrs J S & R E Anstey of Old Court Farm, Rogiet (O213)

8.229 The farm unit lies between the existing busy M4 and M48 motorways and close to the B4245. However, it seems to me that it is inevitable that the proposed hamburger junction with the spurs to and from the B4245 and motorways would significantly increase the impact of roads on the local environment relative to the current position. That, and the substantial acquisition of land, a matter on which I am satisfied is justified, would render the impact particularly adverse. I therefore conclude at the impact that the scheme would have on Old Court Farm would be severe. This inevitability, which in my opinion could not be mitigated, was offset at the end of the Inquiry by the acceptance by WG of a blight notice and therefore I am able to conclude that to be a satisfactory way forward [6.756, 6.757].

Inspector's Note.

At the end of the Inquiry WG were finalising the purchase of this property.

Miss Susan Anstey of Court Farm (O214)

8.230 In my view the impact that the scheme would have on Court Farm is difficult to accurately assess. At present the property is sandwiched between the busy M4 and M48 motorways and close to the B4245. However, that should not dilute the impact that further substantial roadworks would have on the enjoyment of the property and its viable bed and breakfast business. It seems to me that it is inevitable that the proposed hamburger junction with the spurs to and from the B4245 and motorways will significantly increase the impact of roads on the local environment relative to the current position. I am satisfied that all the land included in the CPO is justifiable, subject to the modification introducing an easement in place of title for the area surrounding the proposed headwall. I note the concern about the adequacy of the existing drainage capacity but I am persuaded that the design of the scheme should negate any additional flooding potential over that which currently exists. It is clear that the impact of the scheme on the property would be severe but Modification 67, which I endorse, would be appropriate.

8.231 I note that, at the end of the Inquiry, negotiations between the parties were reaching agreement, with a view to accepting a served blight notice. I conclude that the acceptance of such a notice would be a satisfactory way forward but otherwise the consideration of compensation

could address the injurious affection [6.758-6.764].

Inspector's Note.

At the end of the Inquiry WG were finalising the purchase of this property.

Mr D Colley of Great House Farm (O215)

- 8.232 I am satisfied that most of the land in the CPO is needed for the construction and occupation of the scheme. I note that there is a difference of opinion between WG who estimate the total area of the holding to be 67 hectares as opposed to the agent for Mr Colley who assesses it at 65 hectares. This difference of opinion seems to me to be of little relevance to the issue of whether or not the holding would be viable after the scheme is constructed, because in my opinion it would be viable if the holding was only 65 acres, with the permanent land take from it of about 10 acres (4ha). Whilst I accept that there is a compelling case in the public interest for both the storage and borrowing of earthworks material in that plot I am not satisfied that the permanent acquisition of plot 17/6a can be justified for landscaping. I therefore conclude that the CPO is justifiable in terms of the land take from Great House Farm subject to the permanent acquisition of CPO plot 17/6a being removed from the Order [6.765-6.767].

Mr Derek David of Fair Orchard Farm, St Brides Wentlooge (O216)

- 8.233 Fair Orchard Farm would be severely affected by; the main line of the proposed motorway, drainage lagoons and a substantial side-road diversion of Lighthouse Road, all close to the hub of the unit. I am satisfied that all these works, together with rights of access for maintenance and mitigation, are justifiable. Nevertheless, I am in little doubt that during construction and thereafter, there would be a significant adverse effect on the enjoyment of the property. I draw attention to that and the particularly sensitive period during construction. However, I stop well short of accepting that the viability of this large unit, from which less than 10% would be taken, would be threatened.
- 8.234 I note that at the end of the Inquiry a claim for discretionary purchase of the property was being contemplated but as one had not been formally submitted I draw no conclusion on it or make any recommendation about it.
- 8.235 I am also satisfied that all of the land included in the Original and the Supplementary CPO is justifiable based on the demands of the design and the requirement by NRW of a northern location of the water treatment lagoons which, although not close to an optimum discharge point, would be less damaging to ecology.
- 8.236 I have studied the proposed accesses both north and south of the line of the motorway and am satisfied that they are all reasonable. However, I note that a better access position of Lighthouse Road is a practicable proposition and that WG would be prepared to modify the SRO

accordingly. At the end of the Inquiry negotiations between the parties were continuing on the issue of the access. However, should agreement not be reached, I am satisfied that the proposals set out in the side roads order would be satisfactory.

- 8.237 I have also studied the proposed drainage design near the property and agree that it should offer no threat to the farm, either in terms of flooding, or pollution.
- 8.238 I note that WG cannot substantiate a compelling case for the inclusion of all of Plot 6/4y in the CPO. I conclude that the CPO is justifiable but that the area of that plot should be modified to exclude it from the CPO in the vicinity of the garden, as set out in detail in draft Modification 30 [6.768-6.775].

Mr Huw and Mrs Brenda Edwards of New Dairy Farm, St Brides Wentlooge (O217)

- 8.239 Given that only about 5% of the farmland would be affected, the viability of the unit would not be threatened and I am satisfied that all the New Dairy Farm land included in the CPO is justifiable. The small and irregular parcels of land that would be severed by the motorway would require a new access point and it seems to me that the proposed SRO adequately caters for such provision. However, I note that following discussions, and agreement between the parties, the draft SRO would be modified. I conclude that these revised access arrangements set out in Modification 47 would provide a satisfactory outcome [6.776-6.778].

Mr W T German of Arch Farm (O218)

- 8.240 Following meetings and discussions between the parties I note that agreement has been reached in respect of modification 46 and the objection withdrawn. I conclude that to be a most satisfactory way forward [6.779, 6.780].

Executors of D G Harris (O219)

- 8.241 I am satisfied that the majority of land included in the CPO is justifiable for the mainline of the motorway and the screening of it from the western outskirts of Magor (Plots 15/11 and 15/11b respectively). I find the case for the acquisition of Plot 15/11a less compelling bearing in mind that the motorway would be in cutting for the most part alongside this plot and to its west lie non-sensitive receptors. However, I accept that, without screening, the potential of head-on headlight glare would be real and that would represent a compelling reason for both long-term landscaping and the need to safeguard road users in the period before planting becomes established.
- 8.242 Whilst not addressed in the evidence, I cannot see how access to the triangular severed area east of CPO Plot 15/11b could be provided by the draft Orders. I draw attention to that in the light of the objection about severance. I conclude that further consideration of these access

arrangements should be made and, if judged necessary, having regard to Greenmoor Lane an appropriate fresh draft Side Roads Order should be published [6.781, 6.782].

Mr M D W Hazell of Cefn Henllan Farm, Llanhennock (O220)

- 8.243 It is obvious that all the land owned by Mr Hazell and included in the draft CPO is needed for the scheme and therefore that its acquisition justifiable in the public interest. The access arrangements defined by the draft SRO are satisfactory [6.783, 6.784].

Mr P G and Mrs D J Howells of Pant Rhiw Goch Farm (O221)

- 8.244 I am satisfied that the small areas of land included in the draft CPO are necessary to enable the scheme to merge into the existing motorways at its western extremity, to facilitate expedient construction and provide for a new footpath as defined in the draft SRO [6.785, 6.786].

Mr B G James of Courtfield Farm, Undy (O222)

- 8.245 I accept that there would be some adverse impact at Courtfield Farm from the scheme. However, I regard the works as essential for the construction and the subsequent acceptability of the scheme. I conclude that compensation could be considered to off-set the adverse effects [6.787, 6.788].

Mr David James of North Court Farm (O223)

- 8.246 I am satisfied that all the North Court Farm land included in the draft CPO and that currently leased from Tata Steel is justifiable. I am also satisfied that the replacement accesses proposed for the land tenanted from Tata Steel are satisfactory. Reasonably convenient access to the severed plots would be provided by the SRO. I am also satisfied that reasonably convenient access to severed plots would be provided by the SRO. Although I understand that those areas, in isolation, would be inconvenient to farm, I make no further recommendation. I conclude that the effects that the scheme would have on North Court Farm are justifiable [6.789-6.791].

Trustees of F H James and F H James Partnership, Penterry Farm, St. Arvans (O224).

- 8.247 I am satisfied that all the Penterry Farm land included in the draft CPO is necessary and that, as no land would be severed, no new access would be needed to supplement that which already exists from the A4810 [6.792, 6.793].

Mr R M Jenkins of Red House Farm (O225)

- 8.248 The scheme would have an adverse impact on the holding, but I am satisfied that all the Red House Farm land included in the CPO is justifiable for permanent or temporary acquisition and that the

acquisition of a parcel of land tenanted by Mr Jenkins is also justified. Compensation could be considered to off-set any threat to the viability of the holding [6.794-6.796].

Mr C W Jones of Barnett's Cottage, Bayfield (O226)

- 8.249 I note that an agreement has been reached withdrawing the objection subject to the CPO Schedule being corrected in respect of Plot 23/7. I find that to be a satisfactory way forward [6.797, 6.798].

Mr William Jones of Carrowhill Farm, St Brides Netherwent (O228)

- 8.250 The land owned by Mr Jones at Tyn-y-Brwyn Farm would only be marginally affected by the proposed motorway in the long term. However, it is evident that the block comprising CPO Plot 2/18k would be severely affected during the construction period and, in respect of that, I am satisfied, in the public interest, with the need to occupy it for the storage and processing of materials. I therefore conclude that the temporary acquisition of CPO Plot 2/18k is justifiable.

- 8.251 Mr Jones points to the large distance between the scheme and this plot. . WG consider there to be no limitation on distance on the inclusion of land needed for construction purposes in the CPO. WG cite Section 249 of the Highways Act 1980 as amended and Schedule 18 thereof which identifies the categories of land that are subject to distance restrictions. This seems to me therefore to be simply a matter of interpretation of highway law but because no detailed or compelling evidence was advanced by the Agent I simply I draw attention to the matter [6.799-6.800].

Mr John and Mrs Joan Major of Langley Villa, Magor (O229)

- 8.252 Having regard to the proposed encroachment onto this property, I conclude that the enjoyment of it would suffer as a result of the scheme. The consideration of compensation would deal with that. However, I also note that, the route of the proposed bridleway could be amended to run between the proposed attenuation pond and the proposed motorway boundary thereby removing it from the proximity of the dwelling itself. I note that WG support such an amendment, as CPO Modification 34 and SRO Modification 9, and I endorse them [6.802-6.805].

Miss Laura Neville of Cefn Llogrl Fach, Coedkernew (O230)

- 8.253 In my opinion the loss of a fifth of the area of the sizable farm is unlikely to affect its viability because of its size, although it would be considerable. However, I am convinced that the acquisition of land for the construction of the scheme is fully justifiable in this location, both in terms of facilitating the economic construction and the permanent needs of the motorway. I conclude that Miss Neville's land which has been included in the CPO is justifiable.

- 8.254 I note that Miss Neville is concerned about the enjoyment of the retained

property, both during and after construction. In my opinion it is inevitable that there would be an adverse impact from the excavation of material in CPO Plot 2/16c, a matter for which compensation could be considered. In the long-term, I am less persuaded that there would be much an adverse impact on this property, principally because of the existence of the current motorway, although that matter too would fall to be considered for compensation. I note that WG would be prepared to advance modification 17 to reduce impacts and I endorse that [6.806, 6.807].

Miss Christine Phillips of Green Farm, Rogiet (O232)

- 8.255 I am satisfied that all the Green Farm land included in the CPO is needed for the construction of the eastern end of the scheme. Having regard to the current position of Green Farm cottages to the existing M48 and the proposed gyratory system to be constructed less than 300m away, it seems to me that there would be a considerable impact on the property, a matter for which compensation could be considered [6.808, 6.809].

Mr J W Prichard of Little Orchard, Coedkernew (O234)

- 8.256 I accept that the impact that the scheme would have on Little Orchard would inevitably be severe, a matter for which compensation could be considered [6.810, 6.811].

Mr William Reece (O236)

- 8.257 I am satisfied that the majority of the land included in the draft CPO and owned or tenanted by Mr Reece is justifiable. However, no compelling evidence was adduced to demonstrate that the narrow but long strips of land in CPO Plot 15/9m and 14/4b are necessary for essential landscaping, having regard to the fact that these areas of land would lie between the motorway cutting and the operational A4810 and the industrial units beyond. The objection on behalf of Mr Reece is mute on this point. I therefore conclude that all the land included in the draft compulsory purchase order for which Mr Reece has ownership or tenancy is justifiable with the exception of CPO plots 15/9m and 14/4b which should be removed from the Order upon making. New access to those strips would then be required and I draw attention to that [6.812, 6.813].

Mrs Jane Renton of Green Farm, Rogiet (O237)

- 8.258 I am satisfied that all land included in the Supplementary CPO is required for the realignment of the local road network and that any adverse effects on the cottages at Green Farm could be considered for compensation [6.814, 6.815].

Mr Arthur Smith of Orchard Farm, Undy (O238)

- 8.259 It is evident that Plot 16/17c was included in the draft CPO in the belief that the adjacent barns were dwelling houses that would need screening. As that is not the case, there can be no need for Plot 16/17c. WG has promoted modification No. 33 to address that. With the removal of that

plot, I also concur with the proposal to modify the position of the field access, subject to agreement with the owner. I conclude that the proposed modifications to the SRO and CPO are sound, that all of the other land included in the CPO is justifiable and that the minor realignment of the proposed Public Right of Way is sensible [6.816-6.822].

Messrs J J & A D Turner & Sons of Church Farm St Brides Wentlooge (O239)

- 8.260 The objection was solely based on the opinion that Church Farm land included in the CPO was not essential for the proposed motorway. In that regard, I am satisfied that the land earmarked for bridge construction and future maintenance is justifiable and I conclude that all the Church Farm land in the CPO is justifiable [6.823, 6.824].

Mr Alan Williams of Hendrew Farm, Llandevaud (O240)

- 8.261 I am satisfied that the land earmarked for the scheme is fully justified as is the land identified to be used for temporary flooding purposes. The use of that land is important in the public interest. However, I note that WG would be prepared to enter into negotiations which would establish a right to flood that land without enacting the CPO. The conclusion of negotiations would be a satisfactory way forward and I endorse that approach but should they fail then making the CPO in respect of Hendrew Farm is fully justifiable. Accordingly, I do not recommend a modification to the CPO upon making but leave the issue open pending progress on the potential administrative agreement, a matter to which I draw attention [6.825, 6.826].

Mr Lyndon Williams Upper Grange Farm St Brides Netherwent (241)

- 8.262 There is no sustainable argument that the viability of the 254-acre farm would be threatened by the loss of only 9 acres, even allowing for the potential flooding that could occur, at times, to a further 33 acres. The land earmarked for periodic flooding is low-lying and, as is evident, is currently prone to some flooding. I have studied the flood prevention need for this area and its location relative to downstream property and conclude that it is both important and necessary to include it in the CPO. The future enjoyment of the property is in, my judgement, unlikely to be seriously affected by the construction of the scheme. The farmstead is set well back from the proposed motorway and is already affected by the existing M4 and any injurious affection to the farmstead and farm could be off-set by the consideration of compensation. I conclude that all the Upper Grange Farm land included in the CPO is justifiable [6.740-6.742].

Mr Paul and Mrs Karen Clatworthy of the Old Rectory, Coedkernew (O257)

- 8.263 The CPO included land in the garden of the Old Rectory. Following discussions, WG proposed CPO Modification No. 8 which removes the proposed works clear of the garden. This was accepted by Mr and Mrs

Clatworthy, who withdrew their objection. I conclude that the adoption of CPO Modification No. 8 would be a satisfactory way forward [6.827, 6.828].

Ms Claire Rose of 3 Tyn y-Brwyn Farm, Coedkernew (O273)

- 8.264 I am satisfied that the provision of access to Tyn Y Brwyn as set out in the proposed modification would, relative to the existing provision, be safe, commodious and reasonable. Issues of blight are matters of administration and accordingly I draw no conclusion on them [6.829, 6.830].

Mr Mark Williams, Mr Mark Skinner, Mr Mark Williams (Pension Fund Administrators) Mr Clive Coultard (O322)

- 8.265 I have dealt with the case for the alternatives at Section 7 above and conclude on them below. I am satisfied with the need for the drainage system included in CPO plots 1/4, 1/4b 1/4f and the necessity of plot 1/4a, 1/4g for construction of. I conclude that the acquisition of these plots is justified in the public interest [6.831-6.833].

Mr Waters of Great House Farm Nash (O6891)

- 8.266 I have dealt with the case for the scheme, its sustainability, use of public funds, noise and ecological effects above.
- 8.267 Of the local points raised by Mr Waters, most could be dealt with satisfactorily by the provision of accommodation works or compensation and I am satisfied that drainage would be adequately dealt with by the proposals which seem to me to be logical in engineering terms.
- 8.268 I accept that the SRO would result in the need to travel long distances to manage the farm but, given the existing substantial distances involved, I do not regard the distance imposed by the SRO would be either disproportionate or unreasonably inconvenient. I note that WG has proposed SRO Modification 3 and CPO Modification 19 and these would, in my view, adequately provide for access to Mr Waters' land. I am also satisfied with the need for maintenance access for the proposed bridge which would be necessary to carry the motorway across the River Usk and the Docks. In my opinion, that need is satisfactorily catered for by the Orders, whilst the alternative access via Corporation Road would be unacceptable because of the complex interfaces with a gas pipeline, the National Cycle route and the Uskmouth railway. I therefore conclude that the CPO and SRO in respect of Great House Farm, Nash are both satisfactory [6.834-6.838].

Conclusions on Statutory Objections on matters other than the principle of the scheme

Mr C W Rabbitt

- 8.269 I am convinced that the highway closures associated with the

construction of the motorway are fully justified for a temporary period and that access to Mr Rabbitt's property could be maintained during that period. I accept that the alternative route would not be commodious, although I am satisfied that a heavy goods vehicle and fire engines could use it. It is obvious that passing places must be provided at frequent intervals along the lane, from which lines of sight of oncoming traffic can be gained. I note that both Monmouthshire County Council and WG have reached agreement to provide those. Sufficient space to provide them exists.

- 8.270 In my opinion, to satisfy the statutory tests set for the Side Roads Orders, it will be necessary for those passing places to be established before Knollbury Lane is severed. Accordingly, I draw attention to that requirement upon which the acceptability of making the side roads order depends in this instance. I note that WG has pledged to keep Mr Rabbitt frequently updated on developments. Although Mr Rabbitt will face disruption during the construction period the effects can be reduced sufficiently to avoid frustrating the making of the Side Roads Order [6.81, 6.82].

Marshalls Mono Ltd

- 8.271 The Marshalls' plant would close and that would seriously impact upon the company in Newport, its workforce and, to an extent, the local economy. However, in my view, that disadvantage is significantly outweighed by the benefits the scheme would bring to South Wales. As such I cannot agree that the draft Scheme and Orders should not be made pending the outcome of a satisfactory resolution of this objection.
- 8.272 I note that the company and WG have undertaken discussions with a view to securing a site at Queensway Meadows for redeployment of the current facilities and I commend continued efforts to bring about a satisfactory agreement to both parties. In my judgement the Government own site seems to have the potential attributes necessary, although, whilst I see the advantage of the company securing the adjacent site as well, as far as I am qualified to judge, Queensway would be a reasonable replacement for the existing site. If the parties agree to move forward on that basis, I accept that the new site would need to be ready for occupation before the existing one is vacated. In these circumstances, it seems to me that the necessary urgent works could be undertaken coincident with the advanced works in Newport docks, which have to precede the construction of the Usk viaduct, as soon as practicable thereafter. Such programming would go a long way to helping both parties minimise disruption to their respective programs. I recommend continuous dialogue, an early start on the Queensway Meadows development works and continuous dialogue [6.83-6.89].

Mr T F Hicks - The Parc Golf Club

- 8.273 I accept that the rural, well-maintained and attractive golf club would be adversely affected by the motorway, a matter for which compensation

could be considered. However, there would be no physical effects of any substance on the course itself, although either the practice ground or the separate par three golf course would have to sacrifice land and therefore potential income. Having said that, I am satisfied that the practice range could continue to operate safely and be an attractive facility and that some of the par-3 course could be remodelled effectively.

- 8.274 I accept that floodlighting of the driving range is a necessary component of the business but being at right angles to the line of the motorway, should not be problematic, a matter agreed by WG. I have studied the proposed drainage system in the vicinity of the golf course and conclude that there should be no adverse effect on the drainage of the course. Overall, I conclude that the impact on the scheme on the golf club facilities and its access arrangements would not be serious and any disturbance would be considered for compensation. In my opinion the case for making the Schemes and Orders is not materially affected by the relatively minor impact on the club and its facilities [6.90-6.97].

Conclusions on Statutory Objections opposing the principle of the scheme

The Gwent Wildlife Trust

- 8.275 I do not accept that the Trust would have been unaware that the protected line of the motorway crossed the land when it purchased land at Barecroft Common near Magor Marsh. It was, by that time, a dedicated opponent of the scheme and in my judgement would have been knowledgeable of its intended route. However, I accept that, for the most part, it has ecological value.
- 8.276 Concerns include, damage to the sub-soil of Magor Marsh and potential flooding arising from the earthworks and drainage proposals. I am satisfied that the proposed cutting north of the area would not affect the hydrology of Magor Marsh for the compelling engineering reasons set out by WG. I am also persuaded that the proposed drainage would physically prevent any exacerbation of flooding because of proven hydrologic control and the slightly enlarged capacity of the reed and ditch network. I conclude that no unacceptable hydraulic damage would arise to Magor Marsh [6.189-6.194].
- 8.277 I now turn to concluding on the individual varied evidence of the Trust's witnesses who were not officers of the Trust but who had been asked by the Trust to give expert evidence opposing the scheme, either by writing or appearance³⁹.

Professor Calvin Jones

- 8.278 Having studied the examination of Professor Jones' evidence I consider

³⁹ Some of the evidence of GWT's witnesses on ecological matters has been considered earlier.

that it should be read in the light of his admission that he had not read all WG's evidence that he was critical of. Having regard to that, and the rebuttal of WG, I am bound to set aside his criticisms about potential cost overrun, highway engineering inflation, contractual risk, the economic benefits for firms, all of which were explicitly explained in detail and his belief that the scheme lacks support, which evidently is fulsome and widespread across South Wales. I was also clear to me that some of his evidence was based on hearsay which limits the weight which can be attributed to it.

- 8.279 Much of Professor Jones's concerns were centred on his passion to retain Welsh money for use within Wales and I draw attention to that point, particularly in respect of VAT. I also note the Professor's arguments that, whilst the economic effects of agglomeration can be positive, they may not exist in Cardiff because it is a Government town. The capital city of Wales and the surrounding area of South Wales are not exclusively "Government economies", a point made powerfully and frequently by a large number of supporters of the scheme representing business, commerce and industry widespread across South Wales. The Professor's arguments also ran contrary to the Chief Economist of WG, the CBI and Chamber of Commerce, as well as a large number of industrialists, but it seemed to me that there must be a degree of recognition of his point. I am conscious that it evolved that the Professor had not studied the nationwide report by Sir Rod Eddington, which, as emphasised by WG, remains a well-established and recognised document which addressed such issues.
- 8.280 Contrary to Professor Jones' views, the Inquiry heard of studies indicating a causal link between improved transport and economic benefit and received a mass of evidence from companies and individuals who are convinced that removing the M4 delays, the unreliability of the current road and the damaging perception of difficult road access to South Wales, would benefit them directly and the wider economy. Many regarded the motorway as a barrier to new investment in South Wales, an argument that seemed to me to resonate with the two expert views of WG.
- 8.281 In the round I therefore conclude that no compelling evidence was adduced to seriously challenge the sound economic case for the scheme or undermine the overall case for proceeding urgently with it. Of the Professor's points about the distribution of government money, these are matters that lie outside the scope of the Inquiry and I make no comment upon them [6.113-6.131].

Professor Whitelegg

- 8.282 It is clear from the examination of his case that the Professor had not read the published evidence of supporters of the scheme who were fundamentally opposed to his opinion regarding the potential widespread and specific economic benefit that would accrue from the scheme. In these circumstances, I am bound to conclude that the Professor's critique of aspects of the scheme has lacked an in-depth study of all the relevant

evidence which was available and that is bound to limit the weight that can be given to it in comparison with that of WG.

8.283 I also note that whilst he resolutely maintained his view that the scheme may not have a positively effect on the South Wales economy, his knowledge of other eminent national studies relied on by WG was shown to be limited. That was not helpful to my assessment of his critique of the economic case for the scheme.

8.284 I have addressed objections relating to induced traffic, congestion and carbon elsewhere.

8.285 Having regard to all matters written or exposed at the Inquiry, I conclude that there were no points of substance made by the Professor that should influence the decision of whether or not to proceed with the scheme [6.132-6.140].

Professor Whitmarsh

8.286 Professor Whitmarsh used the Inquiry to advocate a change of transport policy away from any major roadbuilding, arguments I have already addressed in this report [6.141-6.146].

Professor Marsden

8.287 Whilst the Professor was forthright in putting across his opinions I had concerns that some were based on a superficial knowledge of what was being proposed. Given the exposure that the unsustainable, polluting, emissions generating, urban-expressway Blue Route had received earlier at the Inquiry and the concession by its promoter that its capacity may be exhausted before it was opened, I found it impossible to reconcile the Professor's backing for that alternative with his concerns about climate change, value for money and heritage. To my mind they are clearly incompatible in terms of sustainability and other matters. Professor Marsden was not alone in expressing concerns about sustainability and the needs of future generations yet his continued backing of an alternative that was seen to be wanting in regard to those issues introduces the unanswered question of how well informed those who took the stand under the umbrella of GWT were of the earlier revelations of the Inquiry.

8.288 WG comprehensively rebutted all points made in the Professor's evidence and I have taken these and his views into account [6.147-6.153].

Professor Anderson

8.289 Professor Anderson's assertion that the amount of capital carbon which the scheme would produce had been overestimated (by a factor of 4) was completely at odds with another GWT witness, Professor Whitelegg who thought the opposite (by a factor of 8). I have already addressed the issue of carbon but the inconsistency in GWT's evidence in this regard significantly undermines the weight that can be given to it. [4.161-4.164,

6.132-6.140, 6.154-6.165].

8.290 In terms of user carbon, it is inarguable that the scheme would be shorter, eradicate stop-start traffic, draw traffic from more unsuitable roads and induce additional traffic but that been accounted for by the model. Suggestions to the contrary were little more than unsupported assertions, and should be set aside in favour of detailed work reflecting the reality of the capital scheme and the operational road network.

Professor Neil Ward

8.291 Professor Ward focussed on the proposed water treatment system and I have concluded elsewhere that it would be effective and likely to improve water quality in the reen network. He also highlighted concerns about cadium. WG responded by pointing out that its evidence had:

- showed cadium levels to be very low;
- proved that the proposed system would be markedly better than existing ones and included the incorporation of a slack-gradient grass channel from which pollution loads would evaporate or be contained before they could burden the water treatment areas;
- proved that a funded, thorough monitoring and maintenance system had been agreed with NRW and how to identify adverse trends before they become problematic, and
- demonstrated that it and NRW had thought through the consequences of potential, but unlikely, problems arising by agreeing a rectifying deployment of a phased replacement regime of the ailing reedbeds, if necessary.

8.292 I conclude that the water treatment system design recognises the essential need for it to thoroughly protect the reen network and that funding and management plans are in place and agreed between NRW and WG. There is no doubt that this matter has been taken very seriously by the responsible authorities, they are currently alert to the need for excellence in the management of the drainage system which must continue in perpetuity. I highlight that serious point and that, in my opinion, acceptance of it would be a major factor in the decision of whether the scheme should proceed [6.256-6.264].

Other Non-Statutory Objectors who appeared at the Inquiry

Those opposing the Principle of the Scheme

Mr Robert Waller

8.293 Mr Waller raises similar objections to others regarding traffic, public transport alternatives, removal of the tolls, ecology and economic impacts and I have addressed these elsewhere.

- 8.294 During the latter course of the Inquiry Mr Waller's initial stance on a number of issues progressively changed and evolved into him advocating a full-blown alternative strategy as an alternative to the published scheme. I have taken it as being his final position on the matter and have concluded on this, Alternative 29, below.
- 8.295 Having regard to all the points made by Mr Waller, successively in writing and orally during his Inquiry appearances, I conclude that no individual matter or combination of criticisms outweigh the positive reasons for the scheme proceeding in the public interest [6.322-6.361].

The Magor with Undy Community Group

- 8.296 I have addressed the need for the scheme and all related traffic matters earlier. I am satisfied that the publication of the draft Schemes and Orders was fully in accordance with statute. They were well advertised locally through the press and media and the significant public feedback from the consultation exercises was very positive.
- 8.297 I note that the community representatives requested local connections to the proposed motorway for smaller villages and continuity of access alongside Bencroft Lane. First, whilst I readily acknowledge that there would be disruption along its corridor, I am satisfied with the reasonable provision of access along Bencroft Lane during the construction process. I reject the suggestion is that local communities should be connected to a strategic motorway, an idea which would run contrary to the strategic purpose of such a road and national policy. It should be noted that the existing M4 would remain in place and, to my mind there can be no justification whatsoever for the suggestion of linking local communities to a new strategic motorway, the local and national disadvantages from which could be profound.
- 8.298 Turning to Knollbury Lane, I am satisfied that access to premises could continue and that suitable local improvements to existing highways would be made to facilitate that. Although inconvenient to locals, in my view, the closure is justifiable in the overall public interest but I have drawn attention to the need to improve the alternative route to make it acceptable.
- 8.299 I have dealt with the concerns about Llandevenny in my conclusion on Mr Broome's evidence immediately below. The chosen route of the scheme, generally close to existing urban or industrial development and operational roads, means that effects of the tranquillity of the Levels would not be severe in that location.
- 8.300 The Community group was very well represented at the Inquiry but complained about the unfairness of the process in terms of "equality of arms". I have addressed this issue earlier in my conclusions when dealing with matters of law.
- 8.301 I conclude that none of the many points raised by the community group in opposition to the scheme are substantial, and either individually or

collectively should not be regarded as reasons to prevent the scheme from proceeding but I have taken account of them in reaching my balanced conclusions on whether the scheme should proceed [6.466-6.485].

Mr Tyrone Broome representing the community of Llandeenny

- 8.302 I have addressed air pollution, noise and the lack of a noise barrier allegedly impinging human rights in Sections 3 and 6 of the report and earlier in my conclusions.
- 8.303 I conclude that the impact that the scheme would have on Llandeenny would be slight and I am sure that public expenditure on an additional noise barrier could not be justified on grounds of the universally applied national criteria. Accordingly, I make no recommendation in that regard [6.541, 6.542].

Friends of the Earth (FoE)

- 8.304 The initial submission by Friends of the Earth changed in response to the increased expenditure on the scheme and the announcement of the imminent removal of tolls from the Severn Crossings. In the circumstances, where there was any conflict, or maturing of the evidence, I have taken the final position into account, together with all points made or accepted under examination. In essence the objection relied on the FoE belief that:
- the problem of motorway traffic had been overstated;
 - programmed schemes which would relieve the M4 had been neglected in WG traffic model, and
 - a series of small measures, in addition to Alternatives 1 or 2, the Blue Route would satisfy any need, which FoE regarded as being of minor significance.
- 8.305 Amongst its criticism of WG evidence FoE cited an incorrect approach to noise and pollution evaluation and asserted that the scheme would run counter to policy efforts to reduce carbon, because, amongst other things it would cause significant induced traffic (quoting an earlier CPRE report on that subject). A series of assertions claiming that WG evidence was not fit for purpose were listed and that, as previous road schemes had been inaccurately assessed, this one would follow suit.
- 8.306 I have already addressed traffic projections, the effectiveness of public transport as an alternative, ecology and other objections FoE had in common with others. I note that FoE used traffic projections and back analysis from old road schemes, mostly in England, as the basis for its criticism of the current evidence. FoE adduced no unique compelling evidence to demonstrate that WG's predictions are inaccurate. On the contrary, WG evidence is based on a validated model and as the M4 strategic corridor already exists close and parallel to the proposed

motorway, the technical scope for inaccuracies is more limited than would be the case for a new isolated strategic highway through open country. No one put forward any similar project from which the effects of this one could be reliably assessed. The CPRE report was therefore of little value in judging whether similar effects that may have happened elsewhere could apply to this scheme. It is also evident that FoE made errors in its assertion about what was or was not included in the analysis of traffic and the economic worth of the scheme and in terms of general traffic growth even though these matters were detailed and set out clearly in WG evidence. I conclude that the criticism by FoE of WG's traffic case for the scheme is without merit and should be set aside.

- 8.307 I reject the notion that WG had failed to consider reasonable alternatives before publishing draft Schemes and Orders for the Minister's preferred scheme. It is quite evident from the history of the development of the scheme that was not the case and I note, as an aside, that a judicial review into the history of the development of the scheme found it to be lawful and logical in the Judge's consideration of a similar issue. I conclude that alternatives were considered before the publication of the Schemes and Orders, from 2010 onwards and they included a very thorough consideration of the Blue Route before all were rejected as being inadequate, a decision that is consistent with the emerging evidence from this Inquiry.
- 8.308 I also conclude that all programmed road and public transport schemes which might influence traffic volumes on the M4 corridor were included in the traffic model contrary to the assertion of FoE.
- 8.309 The assertions that the Sustainable Development Report and Economic Benefits and Appraisals Report were unfit for purpose and that air and noise assessments were wrong were not supported with any credible evidence. I conclude that all these reports and assessments were perfectly fit for purpose.
- 8.310 I found the FoE evidence concerning the extra traffic which would arise from the removal of the tolls largely unconvincing, although I do agree with them that toll removal might well encourage longer distance trips to use Monmouthshire park-and-ride stations as opposed to those stations in the West of England more local to the origin of journeys. However, the incremental effect that the scheme would bring on such changes, as opposed to the decision to remove the tolls, was not quantified. It seems to me that this potential incremental amount of induced traffic would be insignificant. In my opinion the removal of tolls clearly strengthens the case for the scheme and I consider that FoE reluctance to acknowledge that to be without merit.
- 8.311 Whilst I accept FoE arguments that improvement of the motorway network could not be regarded as an inducement for modal-shift to public transport I am convinced that locally the scheme is compatible with efforts to improve local public transport in and around Newport. It would free M4 congestion which currently locks-in local bus movements. The

scheme, in preventing daily diversions away from the motorway congestion onto the city network would further free up bus movements particularly during peak periods when overspill on to the city's road is greatest. During the many incidents it would avoid gridlock, which, as observed during the course of the Inquiry, is catastrophic to the efficient running of the city's bus services and long-distance public transport movements.

- 8.312 To my mind that is a powerful point in favour of the scheme and public transport enhancement. Links to the park-and-ride sites at Glan Llyn and the Severn Tunnel station would enhance integrated transport between road and rail. Having regard to these points, the scheme could not be regarded as totally anti-public transport or anti-integrated transport.
- 8.313 I conclude that there are no points of substance in the objection of FoE to prevent the scheme from proceeding [6.362-6.403].

Cycling UK

- 8.314 The main thrust of Cycling UK's objection to the scheme was that its construction would sterilise public money that could otherwise be used for cycling and walking schemes. The scheme, they claimed, would be unlawful because it encouraged car use to the detriment of active travel and be contrary to the Active Travel Act 2013. I have dealt with that legal issue earlier and make no comment on the distribution of Government funds, a matter which was beyond the scope of the Inquiry.
- 8.315 Despite setting out the scope of the Inquiry at both Pre-Inquiry meetings and again during the Inquiry, Cycling UK challenged the Inquiry brief. They believed that it should be broadened into an advisory forum potentially aimed at developing the case for a general cycle and bus transport strategy across and around Newport. No details were proposed.
- 8.316 The organisation asserted that less-expensive measures could solve the M4 problem, but did not adduce any compelling evidence to demonstrate how active travel measures could do that today, let alone by the design year. Cycling UK undertook no analysis of the traffic case for the scheme, other than a general criticism which was shown to be unsound and produced no compelling evidence to demonstrate that the traffic case of WG was wrong to any appreciable degree. On the other hand, WG presented its traffic evidence on a consistent and thorough basis, and, for me it was compelling, demonstrating beyond doubt that its traffic model had included all the schemes which Cycling UK claimed had been omitted and that the minor measures advocated by Cycling UK could not have any real effect on dealing with the motorway traffic demand. As stated previously, the claim that active travel measures coupled with improvements to bus services and other planned public transport measures could satisfy the motorway problem was made without any material backing, it is wrong and can be dismissed.
- 8.317 The basic BCR of the scheme was not seriously challenged, although the

less definite case for additional benefits was questioned as was the relative BCR for the scheme to other transport projects. On that point, it seems to me whether one scheme is good or bad in comparison with others across the UK is not for a local inquiry into a specific scheme but a matter for consideration when drawing up Government transport programmes. The M4 scheme is programmed and the most recent issue of Government policy specifically says that an M4 relief road will be constructed. In that sense, at this stage of the procedures, comparing the economics of the scheme with other unspecified transport projects elsewhere is of no value to the assessment of the benefits of this scheme at this Inquiry. It follows that the crucial question is whether the published scheme would offer good value for money or not. I am satisfied that it would.

- 8.318 However, I do share Dr Melia's view that caution should be exercised when claiming what additional economic benefits that might accrue although I am impressed by the views of the business and industrial community of South Wales which is convinced that the scheme will bring economic betterment to the area. I conclude that wider economic benefits might well occur from the scheme but a cautious assessment of them needs to apply in the decision - making process.
- 8.319 There was no unique compelling evidence introduced by Dr Melia in respect of induced traffic, his claim of a potential overestimation of traffic growth, sustainability and the WBFG Act 2015 but he did draw out the fear that a motorway might cause development to move away from urban centres towards motorway junctions. I draw attention to that but if that comes about such proposals would be subject to local planning control.
- 8.320 I am quite certain that the outdated traffic evidence of Cycling UK was wrong. It failed to account for the factual growth on the M4, or other UK motorways and at the Inquiry led to the omission that even if a modicum of growth occurred over the next few years their Blue Route alternative would not cope. In a similar way the criticisms made by Cycling UK about the environmental effects of the scheme, with the obvious exception of its adverse impact on the Gwent Levels and that landscape, were exposed as being wrong. Overall noise and air quality would improve because of the scheme.
- 8.321 I have dealt with the case for the Blue Route in detail below but I found it surprising that those representing Cycling UK at the Inquiry had not appreciated that this alternative, would:
- cause the demolition of well used cycle and footways across and alongside the A48 SDR;
 - introduce a significant additional barrier of severance across that road and the A4810 and the urban fabric of Newport in both the long-term and during the construction of the objector's alternative if that was adopted;

- not include any costs or demonstrable solutions to these rather obvious inadequacies, and
- be faced with practicably impossible engineering problem of segregating pedestrians and vehicles by raising grade-separated flyovers 6m above existing ground level and then erecting cycle/foot bridges a further 6m above those elevated roads to maintain NMU connectivity across the A48 SDR and A4810, given the significant difficulties of underpass construction because of the high water-table alongside much of the SDR and A4810 and site restrictions.

8.322 I conclude that the Blue Route alternative, as advocated and presented under the umbrella of Cycling UK would not be sustainable or compatible with the Active Travel Act 2013. In this regard, if the shortfalls could be put right by adjusting the design of the alternative, that this would be costly, disruptive and further drive down the economic case for the alternative which is already substantially inferior to the published scheme. However, even if the Blue Route package was enhanced, I cannot see how the imposition of the barrier effect from the grade-separated urban expressway along the A4810 and A48 SDR could be regarded as favourable to the current status of pedestrian and cycling infrastructure along these routes. In stark comparison, these routes, with their associated well-used cycle and footways, would be substantially relieved of traffic by the published scheme, with their environment and safety improved, rather than adversely loaded with the Blue Route. Put simply, there is compelling evidence to show the scheme would be more compatible with cycling and walking than would be the case if the Blue Route is advanced as currently planned.

8.323 Overall, I conclude that the assertion by Cycling UK that lesser measures than a full-blown motorway could solve the problem of the M4 were completely unsubstantiated, that the Blue Route would be ineffective in relieving the M4, it would create a significant environmental problem and be incompatible with cycling and walking [6.404-6.465].

RSPB - incorporating Bumblebee Conservation Trust (BCT)⁴⁰ (O245, O6902)

8.324 Whilst it is clear that the objection in principle remains I observe that both RSPB and BCT continued to collaborate until the close of the Inquiry in giving advice on mitigation measures consequent upon the scheme being constructed. I have addressed the points about environmental legislation and the WBFG Act 2015 earlier, although in my view, their claim that public decisions should have regard to the wider spirit of legislation cannot be upheld. It seems to me that the relevant legislation must be interpreted and applied as drafted and additional requirements

⁴⁰ I have also considered other objections on the basis of the impact on birds in this section.

should not be inferred. I have also addressed the impact on the Gwent Levels ecosystems, pollution risks, severance and fragmentation earlier and need not repeat them here.

- 8.325 I am satisfied that the ES covers the adverse impacts on bumblebees, the loss of habitat and connectivity and that WG has taken on-board the BCT draft bumblebee mitigation proposals and committed to develop this into a full mitigation and protection plan. This would include the provision of flower rich meadows and planting of mitigation areas, monitoring and survey work, all recognising the Shrill Carder bee as a qualifying feature of the SSSIs. Connectivity is less important, as the main habitats would mostly lie south of the proposed corridor and would not be segregated, whilst the northern SSSI land is largely already developed or proposed as SSSI mitigation land. The motorway would not be an insurmountable barrier as there would be opportunities for bees to fly over thus maintaining some genetic variation, but an element of danger from vehicular conflict would arise.
- 8.326 I am satisfied that the breeding and wintering bird surveys have been carried out in accordance with NRW advice and consider that the survey material reported in the SIAA, the ES and its supplements is sufficient to adequately inform Ministers. I note from the SIAA and ID 251 that no detrimental effects on European sites are predicted. It follows that there would be no significant effects on the assemblage of birds that make up a qualifying feature of the Severn Estuary SPA, SAC and Ramsar site.
- 8.327 I note that the Bird Protection and Mitigation Plan, produced jointly by RSPB and WG, sets out comprehensive mitigation proposals for the main species. NRW has not objected and the Plan would be updated before construction²³. I draw particular attention the need to ensure that this plan is implemented in full as approved
- 8.328 RSPB's close work with WG consultants has resulted in proposals for alternative sites for nesting and foraging for the Common Crane. This has resulted in an alternative nesting site located close to the existing one being included in the CPO following agreement with the landowner Tata Steel. This would add a further 33 ha of mitigation land, thereby impressively enhancing the already substantial mitigation areas across the Levels and I commend these efforts which could also directly benefit other species such as bumblebees and Cetti's warbler. However, I further recognise that some concerns were raised about the proximity to the proposed motorway and that consequently WG has worked with NRW and RSPB to identify a further potential site on land owned by NRW at the Newport Wetlands reserve, as a back-up if the alternative site was rejected by the birds.
- 8.329 In all these circumstances, I conclude that WG has used all reasonable endeavours to mitigate the impact on the Common Crane, that NRW is content with the mitigation package and it is what RSPB has consistently requested. In this context, I am content that the claims made by Mr Hepworth, that to allow the scheme to proceed would breach

international treaties on migratory water birds has been adequately dealt with by WG in ID245, to which I draw attention. Overall, I conclude that a proportionate response has been made that would safeguard the well-being of birds and, it seems to me, would not represent a breach of any treaty identified. I conclude that the concerns regarding birds and bumblebees have been addressed as far as practicable.

- 8.330 As an associated matter, it is evident that the scheme is a special case of vital nationally important infrastructure provision and its approval would not set a precedent for the approval of other development on the Gwent Levels. Evidence has been adduced that the cumulative effects of a recently proposed solar farm has been considered and relevant information shared with the ecologists for that proposal [6.904-6.942].

Gwent Ornithological Society (GOS) (O297)

- 8.331 I reject the Society's claim that the Magor Marsh nature reserve would be significantly affected. It is evident that only a small portion of recently acquired land would be taken for the scheme and that would have no knock-on effect on the remaining area. The scheme would not affect RSPB reserves and any disturbance to birds has been covered in the ES and mitigation proposals made to address the habitat loss. I am satisfied that the drainage proposals have been designed to avoid pollution of the reens and ditches. I have dealt with the legal issues earlier.
- 8.332 The potential impact on gulls from the re-location works in Newport Docks would be subject to further assessment as part of that consenting process which I have outlined earlier. I note that NRW are content that such matters can be addressed later but the current Inquiry evidence confirms that existing buildings being used for nesting would not be affected. No counter evidence materialised and therefore I conclude that it is unlikely that there would be any adverse effects on the gull species [6.899-6.903].

Woodland Trust (271) – the effect on Ancient Woodland

- 8.333 I am satisfied that the SOCG (ID 150) between WG and the Woodland Trust accurately sets out the issues in relation to the loss of ancient woodland and I concur that this is an important and irreplaceable habitat. In my view, it is clear that the loss of any ancient woodland would be adverse, although the 1.1ha of loss is small. I note that NRW did not object on these grounds and I accept PPW does not impose an absolute embargo on any loss of ancient woodland. The proposed woodland planting would replace the overall loss of all woodland (as distinct from ancient woodland) at a ratio of around 2:1 (around 50 ha would be lost with around 117 ha of replacement). I heard no compelling evidence to demonstrate that significantly larger ratios would be justifiable for such a small area of ancient woodland, mindful of the compelling need to justify the compulsory purchase of all land to facilitate greater areas. I accept that soil from the ancient woodland could be translocated, provided that it is not affected by invasive species. The indirect effects on remaining

ancient woodland would be very limited in scale. I consider that WG has adequately taken account of the loss of this relatively small area of ancient woodland in its assessment of the scheme [6.649-6.655].

The Council for the Protection of Rural Wales (CPRW) (144), coupled with The Campaign against the Levels Motorway (Mr Hepworth) (6929)

8.334 I have addressed the majority of CPRW/CALM's concerns under the Landscape and Ecology, and Principle of the scheme in the earlier sections of these Conclusions and the issue raised very late in the Inquiry by CPRW about the potential breach of international treaties on wintering birds above but several other points were made late in the Inquiry. Of these, my view is that:

- there would be some noise effects on the Gwent Levels, as reported accurately in the evidence of WG
- the chosen route of the scheme, generally close to existing urban or industrial development and operational roads, means that effects on the tranquillity of the Levels would not be severe in that location
- the adverse effects on the landscape of historic interest raised no dispute between the parties at the Inquiry
- the environment commitment stating working hours would be agreed with the local authorities is a satisfactory and normal way forward and I note the advantage of having a public liaison officer employed full-time and available to answer any queries from the public
- the introduction of additional safety works in the Docks is necessary and appropriately engineered to safeguard the viaduct
- the traffic model, traffic predictions and costs of docks related work are all perfectly sound and assertions to the contrary amongst a band of objectors are completely groundless. I am satisfied that the proposed westerly St Mellons park and ride station would not make any material difference to the traffic predictions, or weaken the case for the scheme, and
- approval of the scheme need not set a precedent for further approvals of development to the north of the road line, a matter which would lie with the responsible Planning Authority. No compelling evidence came forward to convince me otherwise [6.585-6.648].

Mr P J Cromwell (99)

8.335 I note Mr Cromwell's support for the early construction of a motorway scheme and his backing for Alternative 3, the Green Route. Should the published scheme proceed, I accept that the land included in the CPO

near Rogiet is necessary for the essential flood prevention works, to protect the community, and the creation of highways for public benefit. The consequences for the B4245 are complex and whilst it is logical to expect benefits of reducing flows between Magor and east Caldicot, additional pressures would be felt through Rogiet itself, although the capacity of the road would be sufficient to cope with these pressures. In that local regard, I conclude that the scheme would achieve a broad balance of advantage and adverse effects on the local road network. I further note that Monmouthshire County Council is aware of and is consulting on means of improving access to the Severn Tunnel station, a matter which would rightly fall to the local highway authority to deal with. No further comment would be appropriate on that matter, other than improved access would be fully compatible with the scheme. I conclude overall that the effects of the scheme on the Rogiet area are acceptable, no serious consequences would arise, and some benefits would accrue [6.486-6.492].

Mr Alan Wilkins of the Light Rail Transit Association (6901)

- 8.336 The distribution of Government funding is not a matter for the Inquiry. The Association's transportation plans would be insufficient to properly address the existing problem of motorway congestion today let alone in the future, as traffic growth and the effect of toll removal exacerbate an already critical situation.
- 8.337 The proposal to make accommodation for non-motorised vehicles alongside the proposed motorway across the River Usk viaduct is not supported by any evidence the need or the advantages of such a measure. The additional cost associated with widening the structure to accommodate such provision would be significant. Further, given the availability of an existing east-west facility across the River Usk (alongside the A48 SDR) and the potential security threats arising from permitting pedestrians alongside the motorway and above the docks, I conclude that such provision should not and need not be made in the wider public interest. I am further satisfied that the proposed layout of the scheme would not adversely affect the future potential for a railway station east of Llandevenny and therefore no recommendation is needed on that point. I am also satisfied that, as a generality, all matters of pollution have been adequately addressed in the design of the scheme [6.493-6.501].

Mr Pickup 77)

- 8.338 Mr Pickup, a drainage expert, raised a very important matter upon which much depends in terms of the acceptability of the scheme and the testing of his evidence enriched the understanding of this critical issue of whether or not the drainage design was sufficiently robust to protect the precious habitat in the reen and ditch network of the Gwent Levels.

- 8.339 Of relevance, it is evident that the design of the safeguarding drainage system has been exceptionally careful in adopting a multi-layered set of safeguards as befits the need to filter and contain run-off from the highway. I have taken particular note of its use of tried systems of hydraulics and the detailed discussions that have ensued between NRW and WG, largely based on the experience of the Environment Agency, and that the system would be carefully monitored in perpetuity. I am content that in times of storm over topping the system would not be hazardous because of the extreme dilutions which would ensue during such periods. I am content with WG claim that the system would provide drainage and filtration apparatus that exceeds all others that have gone before it on the national road network. NRW have accepted the drainage design.
- 8.340 I conclude that the drainage design is fit for the serious purpose of protecting the Gwent Levels and actually improving some discharges that are currently un-attenuated from the existing motorway. However, it is essential that the efficiency of the system must be continually checked by NRW properly funded to discharge such duties. I draw attention to that. Any drainage system carries risks but I am satisfied that, whilst there are bound to be some, these have been thoroughly thought out. In my opinion, the proposed drainage system is appropriate in the most sensitive environment and should be incorporated into the scheme with the greatest of constructional care, upon which much also depends. I further draw attention to that professional requirement [6.502-6.514].

Ms Jane Blank with Mr Jeremy Randles (6910)

- 8.341 I address the merits of the Blue Route below and have concluded on the radical policies to control traffic on the M4, impose tolls rather than remove them and redistribute the money raised to other sectors of public expenditure. [6.515-6.523].

Ms Pippa Bartolotti of the Wales Green Party (O6027)

- 8.342 Claims that there is no traffic need for a relief road and the argument that traffic conditions should be allowed to deteriorate in order to force people to switch to public transport have been addressed elsewhere. Criticisms regarding the accuracy of the presented accident data and the potential for the scheme to cause damage to the port of Newport have some merit. This was recognised by WG who neutralised such criticism by their late proposals for the docks and submission of accurate accident data. I conclude that no material points arose from evidence of Ms Bartolotti to persuade me that the scheme should not proceed [6.548-6.559].

Ms Carol Jacob (252)

- 8.343 Objections on the grounds of the distribution of public funds and traffic are addressed elsewhere.
- 8.344 The notion that the scheme would not assist small businesses runs contrary to the many points made by those from industry and commerce,

large and small, in supporting the scheme. Not a shred of evidence was presented to endorse such a contention. It seems to me to be obvious that the benefits of removing congestion and uncertainty from the M4, would be universally beneficial.

- 8.345 I also disagree with the suggestion that the scheme should be held back pending construction of the Metro. The Metro is currently not programmed in detail but it has been demonstrated to be complementary to the scheme and not in competition with it to any significant degree. In my view, holding back the undoubted benefits of the scheme for the people of Newport and South Wales for no good reason would render a disservice to all.
- 8.346 The claim that woodland replacement mitigation ratios on this scheme should be set at 33:1 is not supported by any technical or ecological evidence. It is noteworthy that NRW have accepted the mitigation proposals of WG as they stand. That would include substantial amounts of woodland replacement. In my opinion that is the correct course to follow.
- 8.347 I conclude that there are no material points arising from Ms Jacob's evidence to prevent the scheme from proceeding [6.543-6.547].

Mrs Ann Picton (203)

- 8.348 Mrs Picton, in an effort to safeguard the peace and tranquillity of the Gwent Levels, put forward Alternative 25 upon which I have concluded below. Of the concern about the extent of the land across the Levels that would be lost to the scheme, I note that of the 125 ha of land which would be taken, about 86 ha of that would be grazing marsh which would, in the medium term, be replaced by the proposed mitigation land, with a substantial degree of betterment. I have had regard to that and Mrs Picton's other points in weighing the overall balance for the case for the scheme [6.684-6.690].

Mrs Louise Davies (6911)

- 8.349 Assertions regarding flooding, danger, re-en contamination and the effect that the scheme would have on colonies of wildlife were all clearly countered by the evidence of WG and the announcement about funding for the Stephenson Street flood prevention scheme. I have commented earlier on the acceptability of the proposed drainage system I conclude that no point arises from Mrs Davies' evidence to prevent the scheme from proceeding [6.691, 6.692].

Ms Ellen Law (308)

- 8.350 I comment on the case for the Blue Route below and have addressed ecology, cost, pollution, the WCFG Act and green transport options elsewhere. I conclude that nothing of substance arose from Ms Law's evidence to prevent the scheme from proceeding [6.693-6.696].

Dr Catherine Linstrum (92)

- 8.351 Dr Linstrum withdrew parts of her evidence that she conceded had been relayed from another person. Of that remaining, Dr Linstrum sought to prove the inaccuracy of public exhibition accident statistics, from which it was established that, compared to national averages, some sections of the M4 are higher, some lower, a position eventually accepted by WG.
- 8.352 Whilst that debate held some academic interest, the material point is that the scheme, in halving traffic on the existing substandard M4, and drawing it away from less suitable roads in Newport and elsewhere is bound to reduce accidents and incidents and thereby be beneficial in strict accident and non-reported incident terms whatever the current statistics show relative to national averages. I am satisfied that correct statistics were used for the assessment of the BCR and that non-reported incidents (which are excluded from the statistics which concerned Dr Linstrum) are frequent thereby distorting the true position. I conclude that there is nothing in Dr Linstrum's evidence which persuades me that the scheme should not proceed [6.560-6.571].

Mr Andrew McDermid(1336)

- 8.353 Mr McDermid was opposed to the scheme on the basis of need, its adverse effects on the Gwent Levels and carbon. Under examination he accepted that, in the long-term the scheme would be carbon neutral whilst the prospect of driverless cars was well into the future and should not influence the decision on whether or not to proceed with the scheme. He remained concerned about flooding on the Gwent Levels but that concern would be negated by the announcement of budgetary provision for the Stephenson Street flood prevention scheme. I note that there was agreement between WG and Mr McDermid that Newport would become a more attractive place should the scheme be constructed, there would be an adverse impact on the Gwent Levels but public transport could not solve the congestion problem of the M4. Having regard to all the points raised by Mr McDermid, and examination of his evidence, I am far from persuaded that the case for the scheme proceeding has been reduced [6.572-6.584].

Mr T N D Anderson of PACE (6905)

- 8.354 The distribution of public funds and an embargo on major road building are not matters for this local public Inquiry.
- 8.355 Criticisms of WG's traffic figures were withdrawn. No compelling evidence was submitted to support objections on grounds of pollution, health, the geographical balance of benefits or futuristic and existing public transport schemes.
- 8.356 Mr Anderson put forward no serious challenge to the view of WG that a significant improvement of public transport or other non-motorised means of travel would only have a minor effect on the case for the scheme. His concern about the acceptability of visibility intrusion from

the proposed Usk Bridge is noted but countermanded by the powerful evidence of the Design Commission for Wales who have praised it, an opinion that he was not hitherto aware of.

- 8.357 I have dealt with the case for improvement of the existing M4 Brynglas tunnels elsewhere and I will have regard to that and Mr Anderson's other points in weighing the overall balance for the case for the scheme [6.656-6.670].

Strategic objections opposing the principle of the scheme who did not appear

Future Generations Commissioner (6923)

- 8.358 At the Inquiry, objectors placed a great deal of reliance on the fact that the Commissioner objected to the scheme, although none added any substance to substantiate or enhance her submissions. The Inquiry was therefore left to consider two contrasting points of view, basically about the interpretation, overall and in detail, of how the WCFG Act 2015 should, legally be applied to this particular scheme, including to its preparation. In that regard and for other reasons, it was unfortunate that the Commissioner did not attend the Inquiry, take the opportunity to explain her complex points and tender herself for cross-examination. In contrast WG's witness was subjected to examination and was able to give thorough explanations on several occasions setting out why he considered that the Commissioner was wrong on a series of points and provide a detailed and persuasive evidence to show that the scheme, including its preparation, fully accorded with the Act.

- 8.359 The matter was further complicated by the impression, or fact, that the Commissioner:

- in submitting her first statement of evidence, seemed to have cross-referred or relied upon the evidence (or advice) of other strategic objectors who, themselves, had subsequently been subjected to Inquiry cross-examination that importantly had exposed some of their evidence as being unreliable (thereby potentially undermining the substance of some of her earlier points)
- after hearing an oral report apparently from an unnamed strategic objector, tabled a second submission, without the Inquiry being able to ratify the accuracy of any of the advice given to her. In this regard, WG were able to make the powerful point that there was no certainty that the Commissioner was in receipt of, or had understood of the dedicated evidence of WG's expert, or had heard the examination of it first hand, before she composed her second submission, and
- appeared before a Senedd Committee, from which the verbatim recordings of her evidence indicated that the scheme could, after all, be acceptable under the WCFG Act 2015. That response

seemed to be inconsistent with her prime written evidence to the Inquiry but is well aligned with that of WG who were able to demonstrate that the scheme would be of benefit to both the economy and the environment, a point about balance that the Commissioner sought to make to the Committee.

- 8.360 As I was unable to explore this apparent inconsistency due to her absence I can do little more than report the significant clash of opinions on whether or not the scheme would accord with the WBFG Act. I draw attention to paragraphs 6.844 to 6.886 of this report as the best way of crystallising the differences of opinion. I am satisfied that WG's rebuttals of the Commissioner's submissions, coupled with its comprehensive analysis of the requirements of the WBFG Act and how the scheme would accord with it, cover all her material points. I have dealt with the legal aspect of this earlier in my conclusions [6.847-6.888].
- 8.361 The evidence of WG demonstrates that the 5 ways of working referred to in the WBFG Act were generally followed in the development of the scheme. In particular, the scheme has considered the long-term needs of the region and assesses impacts over a very long period. The WelTAG assessment process (now endorsed by the Commissioner) provides for integrated consideration of all alternative solutions (including public transport improvements), integration with existing and proposed land uses and the four pillars of sustainability. The scheme was developed in a collaborative way and in consultation with a wide range of sectors. The process looked at the causes of the problems on the M4 and has considered solutions that address these problems and prevent them from re-occurring in the future. The evidence amply demonstrates that the scheme will meet the needs of the present without compromising the ability of future generations to meet their needs. Of critical importance to this is the extensive mitigation proposed together with long-term commitments to its funding and maintenance.
- 8.362 It remained unclear whether the Commissioner appreciated how far advanced in the planning process the scheme had become. It seemed to me that a number of the views expressed would have been more appropriate to the development of a scheme in its much earlier stages rather than one that is past the post in respect of crucial decisions on it having already been taken. To put this in context, had the scheme not faced statutory objections, the making of the Schemes and Orders would not have required any Inquiry. I note that WG draws attention to the fact that the Act imposes no requirement for an advanced scheme to return to the starting gate, and that in their opinion, the law must be present, not retrospective unless explicitly covered. I heard or saw no evidence to suggest that the Act could be retrospective or to convince me that its intensions are not geared to a much earlier stage of the proceedings. To my mind to halt all well-prepared schemes following the coming into force of the Act and return them to the starting-gate of inception is not legally required nor desirable.
- 8.363 There is one further point that needs highlighting, bearing in mind the

necessary scale of a relief road to deliver Government policy of a substantial improvement for the M4. It is the fact that such a road has been and still is firmly included in WG's Financial Plans and Programme for Government, recent documents that must have had regard to the WBFG Act 2015 before they were produced. To my mind that is significant and must indicate that a large-scale relief road capable of succeeding to substantially relieve the motorway must have been thought of as being compliant with the Act. As concluded elsewhere, the only options that could do so would all cross the Gwent Levels and the scheme is the best of those. Such a fact seems to me to be fully compatible with the powerful point made by witnesses that WG's success in meeting the requirement of the Act must be judged on all its actions across a wide range of functions and not on any single project.

8.364 The Commissioner was concerned that the prominent, expensive and large scheme should not set the wrong precedent in terms of the interpretation of the new WBFG Act. However, two points arise from that which need addressing:

- first, there was no evidence adduced to indicate that larger and prominent projects should be treated differently under the Act than more ordinary ones, and
- the Inquiry is not a forum to establish precedents of legal interpretation but one solely concerned with assessing the merits of the published proposals in terms of the tests set for it in statute, having regard to all the relevant evidence submitted.

8.365 Having regard to all of the substantial evidence on this subject presented to the Inquiry I am convinced that the only logical conclusion that can be drawn is that the scheme would accord with the WBFG Act 2015 and its prescribed ways of working. No compelling evidence was adduced at the Inquiry which would prevent Ministers from making of the draft Schemes and Orders [6.847-6.888].

Ms Jenny Rathbone AM and Mr Steve Howell (6906)

8.366 As stated previously the distribution of Government funds is not a matter for any Public Inquiry. In considering the rest of the submission I am firmly of the view that none of the alternative transportation related ideas put forward by these two objectors could be classed as being an alternative route to the defined selected road scheme for improvement of the M4, as provided for by Section 259 of the Highways Act 1980.

8.367 I have, however, considered all the objectors' individual points of criticism of the scheme and of its preparation in my assessment of whether or not to recommend the making of the Scheme and Orders. In that regard I am satisfied that:

- the A465 trunk road improvement was included in the traffic assessment for the scheme;

- the scheme in operation would reduce carbon and overall would be carbon neutral in the foreseeable future;
- the carbon calculations take account of induced traffic and in my view are conservative (in terms of the scheme benefits) because traffic would be drawn away from less suitable (hilly, bendy) routes, the driving conditions on which would generate more carbon than that on a modern relatively flat and free-flowing motorway, and
- the scheme would be compatible with and complementary to the South Wales Metro and the local rail park and ride projects.

All these points were clear in WG's published case for the scheme and I have had regard to them in weighing the balance of whether or not the scheme should proceed [6.943-6.950].

The Federation of Small Businesses (FSB)

- 8.368 The FSB supported the Blue Route on grounds of relative cheapness and a claimed potential for early relief of congestion. The new detailed material published by WG demonstrates otherwise. The Federation offered no challenge to any of that and the Inquiry convincingly exposed the mainstays of its backing for the Blue Route to be wrong, proving the Blue Route would be more than twice as expensive as earlier claimed and it could not be delivered earlier than the published scheme [6.887-6.898].

Mr Lawrence Lowe

- 8.369 Mr Lowe recognises that the M4 needs improvement but favours alternatives 1 and 2 - the Blue Route, on which I have concluded below. I am satisfied that there was a widespread consultation exercise undertaken and would not have expected it to include all constructional details. The use of the Ifton Quarry is well set out in the evidence of WG witnesses for this Inquiry.
- 8.370 I have addressed traffic predictions, ecology, the distribution of public funds and the WCFG Act elsewhere [6.951-6.963].

Mr Tom Chinnick

- 8.371 Whilst I readily recognise Mr Chinnick's concern that the scheme would damage important wildlife and ecological areas I cannot agree that the scheme would be bad in terms of generating carbon dioxide emissions, frustrating the development of the Metro, which is clearly designed to cater for a different transport problem and offend long-term sustainability in respect of climate change. Mr Chinnick seems to link construction of the M4 to a worldwide problem of mass migration of people but produced no evidence to support that notion. Accordingly, I make no comment on that and accept the broader view that the achievement of reducing emissions in Wales, as required by the Environment (Wales) Act 2016

should not be compromised by the scheme [6.971, 6.972].

Councillor Brian Mills

- 8.372 I note that Councillor Mills considers the problems of the M4 could be addressed by green transport measures but did not put forward any specific ideas or analysis to demonstrate how that possibly could be done. It is therefore not possible to reach any conclusion on such an assertion. I also note that he supports the Blue Route upon which I have concluded below. I am satisfied that the cost of the scheme has been properly addressed and has included contingency plans and allowances for risk. I note Councillor Mills concerned about the Gwent Levels, the effect on which would be severe, a factor which I have taken into account in weighing the balance of whether the scheme should proceed not [6.967-6.970].

Conclusions with regard to other specific objections

Those who appeared at the Inquiry

Mr & Mrs Smith and Mr & Mrs Winton

- 8.373 Windmill Cottages lie close to the Ifton quarry haul-road, and in my view WG is wrong to downplay the effect that the prolonged use of that would have on the quiet location. I am certain that use of the haul road, whilst being justifiable in the public interest, would generate an appreciable adverse effect on the environment of Windmill Cottages from dust, general disturbance, noise and visual effects. In such circumstances, WG should liaise frequently with the house-owners and consider some form of shield for them for the duration of the hauling.
- 8.374 I am also sceptical about the assessed visual impact that the scheme would have at Windmill Cottages in year 15 and prefer the views of the objectors on that point. It is evident that tree planting for the Second Severn Crossing scheme has not established well or helped reduce the adverse effect of that scheme on the cottages. I note that an opinion was expressed, that tree growth had not proceeded as anticipated because of the inferior embankment sub-soil used. With that in mind, I consider that the proposed landscaping to shield the cottages should be embellished by the deployment of deep bands of topsoil and suitable rapid growing plants, in order to make the assessment in the ES an accurate depiction of what might follow. I recommend such actions and liaison with the occupiers of the cottages on these matters and as a generality throughout the construction [6.524-6.540].

Dr Diana Callaghan (6919)

- 8.375 Whilst it is evident that the road outside Dr Callaghan's property already floods, I am convinced that the scheme could not exacerbate that given that all the engineering analysis points in the other direction. I am satisfied that the lagoon system would attenuate rates of motorway run-off (which are currently unabated) from entering the ree network and

thereby offer an assurance against additional flooding. I conclude that the scheme would not exacerbate flooding near Dr Callaghan's home and would have some marginal benefits in regulating existing highway run-off flows [6.697-6.6700].

Those who did not appear at the Inquiry

Mr John Evans

- 8.376 I heard Mr Evans' support for a new M4 but also note his suggested changes at the eastern end of it. In my view these have merit in providing local road connections to the Severn Tunnel Junction Station and in relieving the B4245 but they would prevent the local advantages coming from the scheme and delay it. I conclude that Mr Evans' suggestions should not be preferred to those offered by the scheme [6.998-6.1000].

Mr Potts-Johnson and Mr Phil James

- 8.377 WG pointed out that proposals to adjust the existing variable speed control system and tunnel lighting and limited local works had been considered and rejected. For my part, whilst I consider the suggestions to be of interest, there is no evidence to suggest that they would go anywhere near solving the problem of today's congestion and suppressed demand or perform in the design year and conclude that they do not negate the case for the scheme [6.973-6.985].

Mr John Robertson

- 8.378 Mr Robertson is strongly opposed to the construction of the scheme which he regards would completely destroy the SSSIs on the Gwent Levels and the habitat of many species including the common cranes. He advocates diverting money to improve the railways and subsidising rail freight. He provided no evidence to show how that would address the M4 problem or why he considers that taking 2% of the SSSIs would destroy them, a populist assertion that is clearly wrong. I agree that the current nest position of the Common Cranes would be disrupted, but the mitigation proposed for that and other effects on the SSSIs is extensive. These competing factors have been accounted for in weighing the balance of whether the scheme should proceed or not [6.986-6.989].

Mrs Ann Kenny

- 8.379 I conclude that the impact on Mrs Kenny's home, particularly during construction, would be severe. I note that WG has proposed an earth bank between Mrs Kenny's home and the road line to reduce that impact and I applaud that. To be helpful, that bund must be established early in the construction programme and regular liaison on the programming undertaken with Mrs Kenny to make the local impact of the scheme more acceptable. I acknowledge the severity of the local position, but cannot see that this should prevent the scheme from proceeding and all its public benefits realised [6.964-6.966].

Vivien Mitchell

- 8.380 The objector raised a number of concerns about the scheme but produced no material evidence to demonstrate the unacceptability of it. I am satisfied that WG has answered all the points of concern raised and that nothing arose from this objection to prevent the scheme proceeding with all its public benefits. I note the criticism about the short consultation period but confirm that the periods used by WG were standard in accordance with the Highway Inquiry regulations. I am quite satisfied that the alternatives suggested by the objector would be insufficient to deal with the problem the M4 and have commented in detail about the relative benefits of the scheme and the Blue route (Alternative 1) below [6.990, 6.991].

Ms Linda Guppy

- 8.381 I accept that one of the consequences of the scheme would be to increase traffic on some lengths of the B4245 whilst reducing volumes elsewhere along it. Where traffic increases are predicted I am satisfied that the capacity of the road would not be exceeded. I note that Ms Guppy has proposed an alternative local road to reduce these flows. I deal with that in concluding on alternatives below, but such a link road would clearly be for the local authority to consider rather than WG as the strategic Highway authority.
- 8.382 I am quite satisfied that the agricultural land which would be acquired by the CPO near Llanfihangel Rogiet is justified and that whilst there would be a significant adverse visual impact on local residents during the construction period, that would abate over time. I have taken account of this local disadvantage in my overall conclusions for the scheme. I have also taken account of a noise detriment to individual properties arising from the scheme although overall the scheme would reduce the exposure of people to noise. I am content that there would be no significant light or pollution problems arising from the scheme near Rogiet [6.992, 6.993].

Ms Catherine Grady

- 8.383 I am satisfied that the proposed layout of the junctions at Magor and Castleton would be efficient and well signposted. That together with the presence of the existing M4, would give drivers an ample opportunity of adjusting their journeys if need be, with the fall-back position of the alternative route being available. I am also satisfied that the scheme would facilitate good access to Newport through its strategic junctions and that the existing road would remain to give access to the northern part of the city. In that way I fail to see how local city businesses would lose out.
- 8.384 Ms Grady suggestions of increased tunnel capacity at Brynglas are noted but the profound disadvantages of Alternative 19 would not be removed by it and in my opinion this variation of the alternative should be

considered no further. I do however fully agree with Miss Grady's criticism of another alternative of closing J27 and the severe environmental and inconvenience impacts that such a suggestion would have if carried through. Turning to road traffic noise pollution. I am satisfied from the evidence presented that this issue has been fully analysed along the whole length of the proposed scheme. It follows that I do not consider that any matters arising Miss Grady's evidence which should prevent the scheme from proceeding exactly as proposed [6.994-6.997].

Conclusions on the earlier consultation stages of the scheme

- 8.385 Before I proceed to consider the alternatives, I cover here the earlier development and consultation stages of this road project
- 8.386 Details of these earlier stages are set out at paragraphs 4.1-4.16 from which it can be seen that preparation for an M4 improvement scheme started in 1989. Of note, 3 large public consultation exercises were undertaken in 1993, 2010 and 2012 with thousands of respondents engaged. It is evident that many and varied options and strategies were advanced and drew comment by supporters and objectors, before being considered by WG and Ministers, who thereafter took the decision on the strategic way forward. That thorough and long process was the proper stage to consider the strategic approach to solving the identified problem that few denied existed. However, at the Inquiry and in reading written objections, I found it surprising that some objectors thought the current Inquiry process was something of a re-run of those strategic stages (of choosing a broad road, rail or other public transport strategy).
- 8.387 Some had difficulty in grasping the point that, following the consultation exercises, Ministers had already selected the preferred option of a new motorway. They had accordingly legally published specific draft Schemes and Orders the making of which would give them the power to proceed with construction, as the law requires. Instead of investigating an undefined transport strategy for South Wales, the Inquiry was bound to concentrate an independent investigation into the specific objections outlined against the case for a specific published road proposal. In other words, it was a Public Highway Inquiry that had been established in accordance with Regulations, the Highways Act 1980 and Acquisition of Land Act 1981 and which had been allowed to proceed following the Friends of the Earth's unsuccessful legal challenge to the earlier stage.
- 8.388 A number of strategic objectors spent time at the Inquiry advocating non-road-based solutions to the M4 problem, but, in all cases, none adduced any meaningful evidence upon which any reliable opinion could be formed on the parameters which need to be defined for any reasonable alternative to be judged. I draw attention to that and to the lack of understanding by some of the earlier processes that were completed in accordance with establishes highway practices [6.362, 6.406, 6.424, 6.450, 6.494, 6.496, 6.657].

8.389 Having made that observation, the alternatives concluded on below did follow the 1980 Highways Act procedures, save for the lateness of a few. I have assessed all as if they were fully compliant with Section 258(2) of the Act.

Conclusions with regard to the 28 Alternative Proposals

8.390 Before considering the details of each alternative I confirm that I am satisfied that 22 alternatives to the published draft proposals for the creation of a new length of motorway to the south of Newport were submitted in accordance with the timescale set out in statute, a requirement which I amplified at the Pre-Inquiry meetings. Despite that a small batch of fresh alternatives were submitted for consideration by the Inquiry after the specified date, and three of those well into the Inquiry period. They were also considered, and the material points on all were presented to the Inquiry in an orderly fashion. I am also satisfied that the public at large, or organisations, were given the opportunity to support, counter-object or make observations on the alternatives which had been advanced by the statutory deadline, by virtue of WG's non-statutory widespread publication of these alternative proposals.

8.391 At the Inquiry, 4 round-table sessions were programmed to enable the material points on all of the alternatives to be discussed in detail. In this way I am satisfied that a full appreciation of the relative merits of the alternatives was possible and the relevant evidence adequately tested. My conclusions on the individual alternatives are:

Alternatives 1 and 2

8.392 Alternative 2 is an adaption of Alternative 1 (known locally as the Blue Route), only distinguished by the respective advocated time frames for implementation. The proposer in advancing Alternative 2 foresaw a need for Government budgetary purposes to defer the construction of part of Alternative 1, but otherwise these alternatives would evolve to be identical. In my view, they can be adequately considered together against the relative merits of the published scheme and I do so below.

8.393 It is clear that the Blue Route has been a controversial and very well-publicised alternative for years. A large number of those objecting to the draft Scheme and Orders backed the concept of the alternative Blue Route on the basis of the claims at the time that it would:

- provide an alternative clear of the Gwent Levels;
- be very substantially cheaper, and
- relieve the M4 earlier than the published scheme could.

8.394 In weighing the relative merits of the alternatives and the published scheme I am conscious that, at the Inquiry, the promoter clarified his intention not to attempt to replicate the advantages of the scheme simply on a different route from that published. Instead, he advocated the

promotion of what he claimed would be an adequate lower standard to relieve short-term pressures pending a longer-term and undefined area mass-transit system being constructed across this part of South Wales in years to come. Whilst the concept was understandable, he took no opportunity to define such a mass-transit scheme, other than claiming such schemes operate elsewhere in Europe and presented no evidence of its potential effectiveness in removing traffic from the M4 or its cost.

8.395 For its part, WG analysed the effect that a mass-transit system would have on reducing traffic flows on the M4 and, in my view reasonably demonstrated that very little relief would be afforded by such a scheme. Assertions were made in written evidence and at the Inquiry but no compelling and meaningful evidence to the contrary was adduced by anyone. I conclude that even if one assumed that a mass-transit scheme was operating today the M4 would still need to be relieved by a new road.

8.396 In respect of the case for the road-bound Alternatives 1 and 2 their advocate, in a two-day appearance at the Inquiry maintained that:

- there was no problem of congestion on the M4 outside peak hours and that was in a westbound direction only;
- considered that problems would not emerge in the foreseeable future, and
- claimed that his alternatives would be significantly cheaper than the scheme.

8.397 Of importance, he conceded under examination, that:

- he had based his limited alternatives squarely on the belief at national traffic growth had abated across the country and on the M4 at Newport;
- he had not studied traffic counts proving continual growth on the motorway since 2013 when he reported his case for the Blue Route or read WG evidence establishing continual growth, and
- he accepted that the traffic counts based on the electronic MIDAS system would be accurate.

8.398 I am quite satisfied that the well-tested Inquiry evidence showed that:

- annual M4 (Newport) traffic growth has been continuous in recent years and has outstripped national motorway growth, which has also grown contrary to the belief expressed that motorway growth had abated;
- there is clear demonstrable "peak hour" or peak day (capacity restraint) spreading at Brynglas tunnels, because the demand for traffic to go through the tunnels is frustrated by the capacity they

can offer;

- drivers frustrated by delays on their desire line along the M4 seek other less suitable roads through Newport and elsewhere (in other words, the natural demand for use of the M4 through the tunnels is greater than the traffic actually using them), and
- traffic speeds on the M4 north of Newport are often below 50 mph throughout the day and the advocated “peak car” philosophy, upon which the base case for the Blue Route was made, is fundamentally wrong. It cannot be substantiated for the M4 or on other inter-urban motorways in the UK.

8.399 Having regard to these points, it follows that there is more motorway traffic on the network than that assumed in the promotion of the Blue Route and used to justify the basis of the limited capacity design of the alternatives. To my mind this is a crucial point because any motorway relief road must be capable of providing that relief from congestion and must be proven as being sustainable. This point was accepted by the promoter under examination when he effectively conceded that:

- he did not challenge WGs traffic analysis or actual traffic counts over recent years, and
- if traffic continued to grow at a very low rate in future his alternative would run out of capacity before the design year and would be unsustainable.

8.400 From the wealth of evidence presented in this case and the above concessions of the advocate of Alternatives 1 and 2, I conclude that they would:

- be inadequate;
- crucially fail to bring the needed relief to the existing motorway;
- be unsustainable;
- create problems of visual obstruction, noise and air pollution in urban Newport, and
- perpetuate avoidable carbon-burn and local air pollution in the long-term.

8.401 The removal of tolls from the Severn Crossings would make the case for the alternative and its inadequate long-term capacity weaker when compared with the published scheme. Having come to these views about the traffic carrying capacity of the alternatives it was also evident that, should the current roundabouts on the A48 SDR and A4810 be replaced by flyovers as proposed in Alternatives 1 and 2, those improvements would inevitably draw more local traffic onto those road corridors. That view of WG was not challenged at the Inquiry. It follows that, should the

alternative/s be constructed, they would, in attracting local urban traffic, disrupt the passage of vehicles along the SDR, thereby frustrating its current function of serving as an essential distributor road within the southern industrial, commercial and residential zones of Newport. In my judgement that grave disadvantage is, of itself, sufficient to weigh heavily against the alternatives.

8.402 Both before and at the Inquiry, it was claimed that the Blue Route, estimated to cost £350m, would be significantly cheaper than the scheme. WG produced compelling evidence to demonstrate the difficulties of constructing such an urban scheme along a busy road corridor. There was no counter argument. I therefore conclude that a figure in the order of £838 million at 2015 prices, as advanced by WG, would be of the right order.

8.403 Consequently, I am content that the alternative would, in all probability, produce a negative or very low BCR, assuming medium traffic growth. It is significant that no economic dis-benefits have been factored into the BCR calculations to reflect the inevitable and severe traffic disruption that would occur during construction of this on-line largely urban alternative. In my view these would occur for long periods and drive down the worth of the alternative/s. That being the case, I conclude that the alternative could not represent good value for money for the taxpayer.

8.404 I am satisfied with WG's analysis that the alternatives would be bound to increase traffic noise and construction noise at about 3,600 properties in southern Newport and give rise to adverse air pollution because of its proximity to residential areas. In my judgement the proposed proximity of the necessary flyovers of existing junctions to residential property, some planned, some new and some long-established would be so threatening as to cast considerable doubt that the alternative could ever be recommended for approval at a subsequent public examination of it. I conclude that the environmental harm to people that would arise from the alternative/s would be appreciable and, in all probability, to the extent that approval of it could be administratively unacceptable. The alternatives would threaten a major re-development area at Glan Llyn that is part of the strategic plans for the future development of Newport.

8.405 As mentioned earlier the alternative, being an urban scheme, would not threaten the Gwent Levels, nature reserves or SSSI's to any degree. I accept that it would have some limited effect on green areas within the urban landscape but the avoidance of an impact on the Gwent Levels would, in my view, be a major advantage of the Blue Route. I can understand the very large support it has received from the public, particularly those dedicated to the preservation of the Levels, ecology and historic landscape and, in that regard, I give considerable weight to that advantage of Alternatives 1 and 2 over the published scheme.

8.406 In earlier publicity, and in the evidence presented to the Inquiry on behalf of *Cycling UK*, it was claimed that the alternative could be constructed earlier than that of the published scheme. WG rejected that by drawing

attention to the need:

- for the publication of fresh draft Orders;
- to undertake surveys;
- to consult with the public;
- to complete statutory procedures, and
- to undertake a lengthy and staged construction process because of the complexity of the site and the need to keep traffic moving.

8.407 This was countered by the argument that some land is already in public ownership and could be used. I accept that to be the case on the one arm (A4810) only. However, it is clear that fresh draft Orders would need to be published, including a draft CPO and they would be subject to potential objections from statutory objectors and others. It follows that it is probable that a time-consuming Public Inquiry would need to be held.

8.408 Having regard to these points, I am convinced that the alternative could not be built before the proposed scheme. However, with urgency in mind, I do not accept that its gestation period, or its construction period would be as long as that advocated by WG who seem to me to take a particularly pessimistic view in this regard, although it would be bound to be longer. I therefore conclude that the alternative could not be started quicker than the published scheme and would take longer to complete thereafter.

8.409 I note that the alternative has not satisfactorily addressed the problems of community severance (a matter raised by Newport City Council), cycling or walking nor any substantial enhancement, compatible with the Blue Route, of the Tredegar Park or M4 Coldra Junctions., Bottlenecks that would threaten its viability in traffic terms even if the rest of the alternative was satisfactory. Nevertheless, those relatively minor deficiencies could be offset by expenditure and are not therefore major flaws in the argument in favour of the alternatives, although such inclusions would be bound to further depress the BCR.

8.410 In summary, I conclude that the Alternative/s (1 or 2) would:

- have a significant advantage over the published scheme in terms of their limited impact on the natural environment, on ecology, landscape and SAC/SSSIs but that clear advantage would be offset and, largely balanced by the significant environmental noise, visual and air pollution disadvantage it would bring to a large number of residents in southern Newport;
- not be built as quickly as the published scheme or bring early relief to the M4;
- disadvantage pedestrians and cyclists and, as promoted to the Inquiry, would fall foul of the requirements of the Active Travel Act

2013 by not taking reasonable steps to encourage walking and cycling - on the contrary it would substantially reduce permeability for non-motorised users;

- be cheaper than the published scheme but, at about £803-£838m at 2015 prices, the advantages of the two alternatives would accrue to local traffic and not to the strategic needs of the M4. It would represent poor, or low value for money, considerably inferior in that regard to the published scheme and barely acceptable, as a publicly funded scheme, and
- crucially fail to draw traffic away from the M4 corridor; the limited capacity would be inadequate and the network would frequently gridlock an already established, functioning and economically essential corridor along the A4810 and A48 SDR roads, a local factor to which I give considerable weight.

8.411 The alternatives would therefore not be resilient or sustainable and in my opinion fail to satisfy the test set for projects in Wales of being sustainable development.

8.412 I have had regard to the all support for and opposition to this/these alternative/s but to my mind, the drawbacks outlined are collectively so severe that neither alternatives 1 or 2 should not be considered further [7.9-7.37].

Alternative 3 - the Green Route

8.413 As the strategic alternative would adopt the published scheme in its entirety from the Glan Llyn junction westward it is only necessary for conclusions to be drawn on the relative merits of it and the published scheme from that junction eastwards. Both options would provide a modern dual three-lane carriageway built to full motorway standards. In my judgement, it must follow that Alternative 3 would be of a standard which would satisfy all the strategic objectives set for the scheme.

8.414 At the eastern end it differs from the published scheme and in my view would be an improvement of significance on it in that:

- in the medium term, it would reduce the need for carriageway running lanes from a point near J23A eastward and that inevitably would give it a significant advantage over the published scheme in the area of Magor, Undy and Rogiet;
- in moving the motorway further from the northern and western sides of Magor it would be beneficial for that community relative to the published scheme;
- it would have a reduced impact on the Llanfihangel Rogiet Conservation Area and the Devil's Quoit standing stone, although given the existing motorways already affect those sites those advantages would only be moderate;

- it would obviate the need for changes or expensive enhancements to the Magor MSA, and
- it would avoid the need to re-establish and relocate Woodlands House, a Grade II listed building, and have a slightly reduced impact on the historic landscape of the Gwent Levels and on the local SSSI.

8.415 On the other hand, I share the view of WG, the Bishton Community Council, Monmouthshire County and Newport City Councils that in adopting a more westerly and curvaceous line the alternative would:

- be longer than the published scheme;
- interrupt the local highway and NMU network;
- adversely affect the setting of Dewstow House and Gardens;
- adversely affect wildlife enclaves and the landscape, and
- impact to a greater extent in the unspoilt Wilcrick area.

8.416 I accept the evidence of WG that:

- in adopting the environmentally sensitive high ground west of J23A the alternative would produce a greater visual impact than the published scheme;
- the impact of the alternative on agriculture would be greater in that it would take more, good agricultural land and require temporary acquisition of further agricultural land, and
- the alternative would cost in the order of £40m more than the published scheme (although it is noteworthy that it would negate the need for about £16m to provide a new westbound on slip-road to the Magor MSA, if Ministers so decided) and would have a slightly inferior BCR because of these extra costs and its greater length.

8.417 I give weight to the concerns of TATA Steel regarding the impact the alternative would have on the crucial eastern end of the Llanwern Steelworks, which, although not examined in detail at the Inquiry, seem to me from an accompanied site meeting and observations, to be difficult to easily overcome.

8.418 Having regard to all of the above, I conclude that the alternative holds significant advantages over the published scheme but these are offset and balanced by its disadvantages to the extent that, whilst I consider the alternative worthy of consideration, it is in my view, not preferable to the published scheme and should only be adopted if the published Schemes and Orders were rejected. If they are not then there would be no need to consider the alternative further [7.38-7.49].

Alternative 4

- 8.419 As with Alternative 3, Alternative 4 would adopt the published scheme in its entirety from the Glan Llyn junction westward, it is only necessary for conclusions to be drawn on the relative merits of it and the published scheme from that junction eastwards. Similar to Alternative 3, it is obvious that there is little to choose between the alternative and the published scheme in terms of strategic traffic, with both options providing a modern dual three-lane carriageway built to full standards. I therefore conclude that the alternative would be of a standard which would satisfy the strategic objectives set for the scheme.
- 8.420 It seems to me that the main advantage of the alternative is that it would move the through carriageway of the M4 considerably further away from the communities of Magor, Undy and Rogiet. It would also reduce some impact of the motorway on the Gwent Levels and an SSSI. In my view these, including the preservation of Woodlands House are advantages that merit weight.
- 8.421 However, in this case, it is obvious that building the alternative through the open, high-quality agricultural high-ground north of the M4 would cause:
- a significant adverse impact to the landscape;
 - a significant adverse impact to high quality agricultural land, and
 - severance of land and accesses to the north of the existing M4.
- 8.422 The alternative would cost about £57 million more than the published scheme and because of that and its additional length would produce a slightly inferior BCR to that of the scheme.
- 8.423 As with Alternative 3, I give weight to the concerns of Tata Steel over the impact that the alternative would have on the crucial eastern end of the Llanwern Steelworks, which would be difficult to overcome. I agree with the concerns of Newport City Council in that local public rights of way would be adversely affected and the alternative would sever a large employment area from the city.
- 8.424 Having regard to all of the above, I conclude that the alternative holds some advantage over the published scheme, but this is more than offset by its significant disadvantages to the extent that in my judgement, it is clearly not as good an option as the published scheme and therefore need not be considered further [7.50-7.58].

Alternative 5

- 8.425 The alternative, which is a minor amendment to the scheme at its extreme eastern end would cost about £46 million more than the scheme and have a slightly inferior BCR to it. Its advantages lie in the reduced impact that it would have on the local conservation area and clearly improved access to

the Severn Tunnel Junction station. To a small degree it would therefore encourage modal-shift. There would be beneficial reductions in both air quality and noise along the B4245 but the alternative would clearly have an increased impact on agricultural land between Rogiet and Caldicot and some adverse views from properties. Severance would be increased by it and it would impinge upon the green wedge which currently separates the communities of Caldicot from Rogiet. It would adversely affect the setting of Dewstow House and Gardens.

- 8.426 However, in my opinion, it's greatest disadvantage relative to the scheme would be the less than satisfactory connection for eastbound traffic using the existing M4 needing to gain access to the proposed M4 and the Severn Crossing. On that ground alone, the alternative would be relatively unacceptable and that, coupled with its appreciable increased cost, draws me firmly to the conclusion that it should not be pursued. Any local disadvantage resulting from the removal of the alternative's Severn Tunnel station access proposal could be dealt with, if justifiable, as a local authority scheme to solve this local issue [7.59-7.65].

Alternative 6

- 8.427 The alternative is no more than a compatible add-on to the published scheme and one which would have little strategic advantage to the trunk road or motorway network. Its additional cost would produce a positive BCR but it would have an adverse additional impact on agricultural land and the green wedge which presently visually separate Caldicot and Rogiet. Whilst I conclude that the proposal does have some local merit it is clearly a local matter for the Local Highway Authority. It would adversely affect the setting of Dewstow House and Gardens.
- 8.428 Accordingly, I make no recommendation about it other than its consideration must not cause delay to the proposed motorway scheme procedures, under which it need not be considered any further [7.66-7.70].

Alternative 7

- 8.429 As for Alternative 6, this alternative is no more than a compatible add-on to the published scheme. It would cost about £3 million (more than the scheme) and seems to have merit because it would produce a positive BCR without significant adverse effects, other than relatively minor increases in noise and air quality in Rogiet and an adverse effect on the Llanvihangel Rogiet Conservation Area. It would be of local benefit in directly connecting the Severn Tunnel Junction railway station to the strategic road network and would thereby have policy benefits, in accordance with the Active Travel (Wales) Act 2013. I conclude that the alternative would have no strategic purpose other than that and accordingly I make no recommendation about it other than, in my opinion consideration of it must not delay the proposed motorway scheme procedures, under which it need not be considered any further [7.71-7.74].

Alternative 8-10

8.430 As these alternatives were formally withdrawn by their promoters during the course of the Inquiry, without any prejudicial effect on others being evident, I draw no conclusions on them other than that they should not be considered further [7.75].

Alternative 11

8.431 At present, access to the Magor MSA is gained in all directions from J23 of the M4. This would be bypassed by the scheme. Three slip roads connecting to the proposed motorway would be provided but the fourth, which would provide westbound egress from the MSA to the proposed motorway, is not proposed. Instead, reliance is placed on the existing westbound on-slip at J23 and the altered (existing) motorway, to perform that function as an all-purpose trunk road. Alternative 11 would provide a fourth slip-road (for westbound traffic) thereby providing virtually direct access from the MSA to the proposed motorway.

8.432 No party argued that the additional slip road would be a bad thing but WG considered the scheme, without it, was sound and overall expedient in the public interest. It resisted spending £16m of additional funds. Roadchef argued that the slip-road was needed to safeguard against situations where drivers, being less encouraged by the absence of a near-direct slip road to use the facilities, could fall asleep and crash.

8.433 In my view, the justification for the slip road is finally balanced, not least because I regard the future use of the existing westbound arrangement (via the proposed all-purpose trunk road) to be a perfectly reasonable and commodious proposition. I reject the suggestion that drivers would disfavour that lower standard all-purpose road because it would remain a nationally managed high standard dual carriageway and one relieved of its current traffic pressures. I therefore conclude that the proposed egress arrangements from the MSA to be a perfectly reasonable, practicable and expedient proposal. The scheme, as an entity, does not need it to be justifiable.

8.434 However, the question still arises of whether Alternative 11 is worth doing in the interests of the travelling public. At the Inquiry, WG suggested that acceptance of the alternative would delay the scheme and frustrate its benefits. I reject that notion because:

- the slip road Supplementary Orders for its promotion could easily be advertised before the main construction scheme was seriously advanced and engineering provision made for any subsequent incorporation in due course;
- the scheme programme has slipped to accommodate works in the Docks thereby facilitating administration time to publish additional Orders, and
- construction of the slip-road and its associated bridge would be a

relatively simple engineering and administrative procedure which would not incur delay for the overall scheme. I am convinced that even if objections were lodged against the slip road, it should still be possible to complete any statutory procedures expeditiously and to such an extent that they could deliver made Orders for the slip road before construction of the proposed motorway was critically advanced.

I conclude that the alternative need not delay the scheme.

8.435 The other material factors are:

- the additional slip road would cost about £15 million but would produce a positive BCR, with the overall BCR for the scheme, including the westbound slip road being marginally greater than that of the scheme without it;
- provision of the slip-road could potentially reduce the amount of compensation that otherwise may be paid and, if that were so, it would enhance the economic case for it;
- the on-slip would give rise to few adverse impacts;
- in terms of driver perception, it would be more convenient and perhaps more attractive for those westbound motorists who would travel on beyond J29;
- the nearest MSAs on the M4 and M5 motorways to the east are distant from Magor;
- the road-safety audit was critical of the omission of the slip road;
- in the absence of a Welsh standard, the English standard advocating frequent MSAs along the network is appropriate, and
- the imminent removal of the Severn crossing tolls will also remove a current "wake-up" check point for sleepy drivers thereby improving the justification to make the MSA at Magor even more attractive,

8.436 However, in my judgement these matters are not compelling either way and to my mind the issue simply dissolves down to one of affordability.

8.437 I therefore conclude that:

- there would be advantages to the travelling public from the incorporation of the westbound on-slip from the Magor MSA;
- there would be no minor material disadvantages arising from it;
- the slip-road would be a sound investment of public funds, and
- without the slip-road there would be no unacceptable deficiency in

the draft Schemes and Orders or an impediment to their making.

- 8.438 Therefore, and on a fine balance, I conclude that there would be a degree of advantage to the public should the westbound on slip road be incorporated into the scheme, providing that no delay to the construction of the motorway ensued as a consequence of the decision to publish fresh Orders in respect of it. However, I stop short of concluding that this expenditure is essential; the scheme would perform satisfactorily without it. I therefore recommend that, if affordability is not an issue, the additional slip road should be adopted. If it is a concern, it need not [7.76-7.78].

Alternative 12

- 8.439 The alternative represents a clear advantage to the local business premises whose car parking area would be severely disrupted by the scheme. However, it is a very local issue, would not affect the scheme strategically in any way and its adoption could cause some inconvenience to the power line supply to the London – Swansea mainline railway. No evidence was adduced to demonstrate that any of the £2 million additional expenditure, which would be necessary to adopt the alternative, would represent value for money. It seems to me therefore that any proven disadvantage to the business could be met the consideration of compensation. Accordingly, I conclude that the centre line of the proposed motorway need not be altered to accommodate the suggested alternative alignment [7.79-7.82].

Alternatives 13, 14, 15 and 16

- 8.440 As these alternatives were formally withdrawn by their promoters during the course of the Inquiry, without any prejudicial effect on others being evident at the Inquiry, I draw no conclusions on them other than they should not be considered further [7.83].

Alternative 17

Inspector's Note

The option of removing the Docks Access Link was initially promoted by ABP who formally withdrew the alternative towards the end of the Inquiry but I am conscious that, at the close of the Inquiry, not all tenants of ABP in the Docks (who supported ABP's position as a whole) had withdrawn their objection and therefore I deal with the case for Alternative 17 here.

- 8.441 This alternative is a straightforward reduction in the scope of the scheme by the removal of the proposed grade-separated junction and the A48 SDR Docks Link dual carriageway which skirts the Docks Way landfill site and land within Newport Docks itself.
- 8.442 This would offer the advantages of a cost saving of about £76m but the remaining scheme BCR would reduce to 1.51, indicating that removal of the link would sacrifice a significant amount of economic benefit which would otherwise accrue from the total scheme. Offsetting that

disadvantage, the omission of the Docks Way Link Road would reduce the impact that the scheme would have on Newport Docks, (whose owner has confirmed that it would be content to see the alternative not proceed) and to a limited extent on the nearby SSSI, and reduce construction risk.

8.443 On the other hand, removal of the link would also reduce accessibility into Newport and in keeping more traffic on the SDR, would burden that already hard-pressed vital distributor road. Given that the Docks Way Link would carry about 22,000 vpd in 2022, it is inevitable that without it there would be a major reassignment of traffic onto local roads, including the proposed Glan Llyn junction and link, if it is removed from the scheme. Some of those roads run close to proposed or existing residential areas and removal of the Docks link would cause an adverse noise and air quality impact on local roads throughout Newport, because less traffic would be carried on the motorway. To my mind, that must be a strong point in favour of retention of the Link Road.

8.444 The suggested removal of the Link Road is strongly opposed by Newport City Council who see it as conflicting with the potential for regeneration and vibrancy of the city centre. That too is a strong point.

8.445 I conclude that the removal of the Docks Way Access Road from the scheme would save significant cost saving without sacrificing a great deal of economic benefit and could therefore be regarded as being attractive in terms of affordability. However, the offsetting disadvantages of:

- removing a strategic motorway link from the docks;
- removing heavy docks bound traffic from the A48 SDR;
- frustrating strategic planning, and
- sacrificing some incremental value for money

constitute a powerful argument for retaining the link, when taken together, constitute weight, leading to my overall conclusion that the Link Road should not be removed from the scheme [7.83].

Alternative 18

8.446 This alternative is identical to the published scheme west of Magor but in my view, would introduce improved access arrangements at J23a (including a westbound on slip road from the MSA) and an interchange at J23 instead of the published scheme's complex junction arrangement. I am of the view that the alternative has significant local advantages over the published scheme.

8.447 Balanced against those advantages is the increased cost of about £30 million and a reduced BCR of 1.33 compared to 1.65 for the published scheme. In view of the fact that the alternative would provide a westbound on-slip-road from the Magor MSA costing about £15 million, the disadvantage that the alternative would carry in terms of additional cost

would be partially mitigated if decisions are taken to incorporate the westbound slip road into the scheme (Alternative 11).

- 8.448 Matters of air quality and noise are similar between the alternative and the published scheme but I accept that the alternative would introduce a significant amount of severance of agricultural land located to the north of the existing M4 and also that the creation of a motorway on this rising land would have adverse visual consequences and an increased impact on the landscape. On the other hand, it would significantly reduce the impact on the Llanfihangel Rogiet Conservation Area.
- 8.449 Having regard to these points and whilst the alternative has some clear advantages over the published scheme I conclude that overall the alternative, whilst acceptable, is slightly inferior to the published scheme and therefore it need not be considered further [7.84-7.87].

Alternative 19

- 8.450 I can easily understand that this alternative would be popular with many who seek to avoid a motorway passing to the south of Newport through the Gwent Levels and those who are concerned about the cost to the public purse. These, and the extra traffic capacity provided to the existing M4, are the strong points of the alternative.
- 8.451 Set against that is the difficulty and inconvenience to the travelling public of constructing such a scheme on the line of a heavily used and sub-standard motorway. No reasonable evidence was produced at the Inquiry to illustrate that such a project could be undertaken without drastically affecting traffic movements along the M4 both at Brynglas and elsewhere. Further, it would cause traffic chaos for the duration of the long construction period, not least because of the confined nature of this stretch of motorway. In my opinion, that would be a major disadvantage of the alternative and one alone which should prevent the alternative from proceeding. In addition to that disadvantage the alternative would offer no relief from traffic pressures east of J25 or west of J29 and a degree harmful landscape and visual impacts would be introduced. I cannot see how it could be regarded as a sustainable development. Residents either side of the motorway would suffer environmental harm from constant noise.
- 8.452 It is obvious that the online alternative would not only fail to alleviate the current air pollution as much as the published scheme but it would exacerbate the problem and would produce an extremely weak BCR of only 0.17, which, to my mind, effectively renders it poor value for the investment of public money.
- 8.453 The variation on the alternative proposed late by Ms Catherine Grady would increase its cost and depress its BCR relative to Alternative 19.
- 8.454 Having regard to the above I conclude that the alternative or its variation should not be considered any further [7.88-7.94].

Alternative 20

8.455 Constructing a motorway tunnel from Magor to Castleton would remove the threat of a motorway and traffic crossing the Gwent Levels or offending its historic landscape. Further, it would substantially reduce flows on the existing M4 between these points and create little environmental harm other than that associated with the massive disposal of soil and air quality at its portals either end. However, it would cost in the order of £10bn, a massive disadvantage to proceeding with it and because of that capital cost it would produce an unacceptably low BCR of 0.14. In my opinion that would render the proposal unacceptable on grounds of cost and inadequate economics. I conclude it should not be considered further [7.95-7.99].

Alternative 21

- 8.456 The alternative would be identical to the published scheme west of a point near the Gwent Euro Park. To the east of that the alternative would run to the south of Magor in a reasonably straight line to the current toll booths of the Second Severn Crossing. In so doing, it would reduce journey times for through traffic and deliver a direct strategic highway to the south of Newport. In my view that considerable advantage would be offset by the additional cost of about £97 million and the reduced BCR relative to the published scheme of 1.33 compared to 1.69. Therefore, in economic terms the alternative, whilst sound, would not perform as well as the published scheme. Relative to the published scheme it would also have a major additional impact on the Gwent Levels, including on land within the Magor and Undy SSSI and Magor Marsh SSSI and in skirting to the just south of Magor was cause considerable disturbance to residents there.
- 8.457 I conclude that the alternative would be relatively beneficial for through traffic but its economic case is inferior to that of the published scheme, it would cause more disturbance to people and crucially a significant additional adverse impact to the Gwent Levels. It follows that on balance it should not be considered further [7.100-7.106].

Alternative 22

- 8.458 The aim of this do minimum suggestion is to solve the motorway congestion cheaply by local junction closures, whilst causing little environmental damage. It is clear that merging traffic interfering with the through-flows would reduce but it is equally obvious that the displaced traffic would redistribute onto other less optimum routes, much of it before accessing the M4 elsewhere. That inefficient routing would incur significant negative benefits and make the £10m cost an acceptably poor investment of public funds. Apart from that, the closures would only abate traffic on the M4 by about 5% which would be insufficient to make a difference in the unacceptable current conditions, let alone future flows. Locals would be severely burdened and inconvenienced and I conclude that the Alternative should be rejected on those grounds alone. The adverse effects of the diverted traffic would also, in my view, cause a significant disservice

to the population of northern Newport through increased pollution, unnecessary emissions and a potential increase in urban accidents. The alternative should not be considered further [7.107-7.118].

Alternative 23: The Blue Route with the Duffryn Link

8.459 My conclusions about the Blue Route (Alternatives 1 and 2) are set out above and are all applicable to this alternative. The Duffryn Link, a relatively simple local road connection, would make an insignificant improvement to Alternative 1 and 2 and therefore, because of their unacceptability, Alternative 23 should also not be considered further [7.119-7.124].

Alternative 24: The Amber Route

8.460 My conclusions about the Blue Route (Alternatives 1 and 2) are set out above. This alternative would be a phased variation of that with a different alignment over the River Usk and Docks, by departing from the A48 SDR to the south. As such my main conclusions on the Blue Route (Alternative 2) are all applicable to this alternative. It would be cheaper than the published scheme but its BCR of only 0.47 demonstrates it would not be a good value for money and in my opinion renders it unacceptable in terms of an investment of public funds. That, and the severe disadvantages associated with the Blue Route, lead firmly to the conclusion that it should not be considered further [7.125-7.130].

Alternative 25

8.461 The alternative was advanced with the sole purpose of improving the current conditions on the M4, whilst avoiding any impact on the Gwent Levels, or their SSSIs. It was not advertised with all other alternatives because it had not been identified in sufficient detail by the time period specified at the Pre-Inquiry meeting. Nevertheless, I am satisfied that this did not prejudice the promoter of the alternative who had a number of opportunities at the Inquiry to express her views about the alternative and to question WG witnesses. She rightly took advantage of that.

8.462 Whilst initially the idea of a separate additional tunnel at Brynglas was advocated, I am satisfied from WG's report that the obvious and dramatic topographical constraints of the River Usk, the hillside either side of the river and the meandering alignment of the existing M4, rendered it impossible to curtail the scope of the tunnel whilst providing satisfactory engineering connections at either end. I am further satisfied that a tunnel, engineered to accommodate a modern motorway to full alignment standards, would need to be about 8 km long and the cost of the alternative, estimated to be £4.9 billion, would be of the right order.

8.463 WG accepted that the alternative would have a significant advantage in avoiding the Gwent Levels totally whilst also having marginal benefits in terms of overall air quality and overall traffic noise in comparison with the published scheme. These are important advantages but relative to the published scheme the alternative would create a greater volume of

greenhouse gases.

8.464 However, in view of the deficiencies of the alternative in not meeting most of the objectives of the scheme, in failing to address the disadvantages of the existing motorway west of J26 and the huge cost I conclude that the alternative:

- is unlikely to be affordable;
- would not provide value for money;
- would not substantially improve the M4 motorway over the length between Magor and Castleton, thereby being unsustainable, and
- would give rise itself to environmental problems associated with the engineering and deposition of material which would need to be excavated through the hillsides of northern Newport.

8.465 I conclude that, relative to the published scheme, the alternative has severe disadvantages and should not be progressed any further [7.131-7.134].

Alternative 26

8.466 This late suggestion of an alternative located to the north of Brynglas Tunnels can be regarded as similar to Alternative 19 upon which I have concluded above. I am content that it would cost in the order of £700m, thereby offering an appreciable saving over the scheme but, in my view the BCR of only 0.17 renders it unacceptable as a publicly funded scheme. Whilst I am also satisfied that the alternative would provide extra capacity between J25 and J27 of the M4, it is evident that it would do nothing to improve the motorway either side of those junctions, including along its busiest length to the west. In my view it's curtailments to the east and west could be regarded as unsustainable, because of the evident need for future improvement of those substandard lengths, and that, coupled with its unacceptable BCR leads to the conclusion that it should not be considered further [7.135-7.137].

Alternative 27

8.467 This alternative strategy, rather than a route, would have the advantage of avoiding the Gwent Levels. It emerged through an iterative process of deploying other, or parts of other, alternatives, but even then, its widespread and diffuse nature was not defined sufficiently to enable a meaningful and detailed quantitative analysis to be undertaken by WG on all its aspects. I am, however, satisfied that, in relying on a number of similar alternatives which could comprise elements of this alternative strategy, and which had been advanced in detail to the Inquiry and analysed appropriately, there was sufficient information, when looked at in combinations, to enable reasonable conclusions to be drawn about the limitations of the broad effectiveness of the package advocated as Alternative 27.

8.468 From this study, the following conclusions can be drawn:

- firstly, no individual element of the package would be sufficient to address the problems which would be experienced on the M4 by the design year;
- secondly, the road-based elements in combination, of widening to SMART motorway status, driving an additional tunnel at Brynglas and constructing the Blue Route would be a substantially more expensive than the published scheme but offer poor value for money either individually or in combinations;
- it seems to me that, as investments of public funds, these elements of the strategy would be unacceptably poor;
- closure of the existing junctions north of Newport would be ineffective in providing relief to the whole stretch of motorway north of Newport and crucially, in my opinion, provide a grave disservice to the residents of the city, those using existing non-motorway routes and public transport users as well. Such a proposal would, either individually or in combination, offer poor value for money and generate significant adverse environmental effects and inconvenience to residents of northern Newport and its surrounds. It would cause unnecessary diversions and avoidable polluting emissions;
- based on the paucity of information provided by the advocate it is impossible to assess the cost and benefit consequences of building a light-rail system between the Newport and Cardiff areas (as part of this package) and any reduction in the stress that the M4 currently suffers, although I note WG's evidence that such a futuristic but as yet unplanned or programmed scheme would have relatively insignificant impact on the existing motorway corridor traffic, and
- building the Blue Route, apart from being economically unattractive, would be a disservice to those individuals and commercial companies currently relying on the important A48 SDR in southern Newport and would inject noise and air pollution into the immediate surroundings of a significant number of residential properties, because of the raised nature of the grade-separated junctions adjacent to them.

8.469 The overall conclusion on Alternative 27 is that there is adequate evidence to demonstrate that:

- no individual road-based improvements (of the package) would satisfy the needs of the M4;
- the combinations of road-based proposals are inferior to the published scheme in offering sufficient relief to the M4;
- the individual road improvements would be very expensive and

together or in isolation would offer poor value for money;

- the individual road improvements would be environmentally damaging and significantly disrupt current traffic;
- the case for M4 junction closures should not proceed because of the severe adverse effects they would bring whilst not providing any benefit of substance to the motorway;
- the online widening of the existing M4 to full SMART motorway standard would be difficult to achieve because of the requirements of visibility and adequate cross-section, neither of which is adequate along this constrained motorway, and above and alongside which sit residential areas, parts of which would need to be demolished whilst others would be significantly affected by the proposal, and
- the combinations of public transport measures would themselves be of limited benefit to the problems of the M4.

8.470 I therefore conclude that the alternative package advocated as Alternative 27 should not be considered further, in whole or part [7.138-7.146].

Alternative 28

8.471 The alternative was advocated with the intent of increasing motorway network resilience at J23, which would have benefits in the event of an incident occurring on the Second Severn Crossing or its approaches. In my opinion that advantage would, on balance, also be enhanced by providing a free-flowing connection between the M4 and M48 motorways but the additional cost of about £55 million is substantial and I am satisfied that the investment would not be recouped by the provision of sufficient economic benefits. I am also content that the environmental impact of the alternative is relatively balanced with that of the scheme except that it would cause an adverse impact on Dewstow House and Gardens, but be less harmful to the Llanfihangel Rogiet Conservation Area. In my judgement, the key issue is whether the substantial expenditure could be justified as a means of offsetting potential, but infrequent, disruption to the network. Given the relative infrequency of incidents occurring on, or adjacent to, the Second Severn Crossing and recognising that a motorway diversion route would exist anyway, albeit with some inconvenience at J23, I cannot conclude that the alternative would represent good value for money or is justifiable. I therefore conclude that the alternative, whilst having merit at the eastern end of the scheme, need not be considered further [7.147-7.149].

Summary of Conclusions about the Alternatives

8.472 All alternatives advanced to the Inquiry pursuant to Section 258 (2) of the Highways Act 1980 have been considered. They fall into four categories.

- 8.473 Firstly, a number were limited, local highway improvements mostly at the eastern end of the scheme to address a perceived local highway problem which need not concern the Minister. Some are not without merit, but would be more properly dealt with by the Monmouthshire County Council [7.59-7.74, 7.79-7.82, 7.107-7.118].
- 8.474 The second category are those constrained to improving the current alignment of the existing M4 corridor, all promoted as strategic alternatives to the scheme. Some were suggested as part of a package of other measures. In my opinion, as none of those alternatives could sustainably address the current, or future, problems of the M4, or be economically justifiable as a public investment of funds, with or without the supplementary measures, they should be rejected as insufficient, wasteful of public money and not considered further [7.88-7.99, 7.131-7.146].
- 8.475 The third category was a batch based on the Blue Route's concept of improving the A4810 and A48 Newport SDR corridors. All these were claimed to be strategic alternatives by their proponents, but upon investigation were found to be severely deficient in terms of offering relief to the motorway both in the short or long term and would thereby be unsustainable. That factor, coupled with building an elevated urban expressway close to where people live and burdening still further an important collector/distributor road, upon which much industry, commerce and distribution depends, leads me firmly to the view that none should be considered further [7.9-7.39, 7.119-7.130].
- 8.476 The fourth category were strategic alternatives, using the alignment of the published scheme west of Llanwern Steelworks. I am satisfied that some of these could be justifiable as being compliant with the National Strategy of offering: *a significant improvement to the M4 around Newport*. The best of this batch was Alternative 3 - the Green Route [7.40, 7.76-7.78, 7.84-7.87, 7.100, 7.147-7.149].
- 8.477 However, as I set out below, I consider the draft Schemes and Orders, when modified, meet the statutory test set by Section 10 (2) of the Highways Act 1980, defining the published scheme as one shown to be expedient in the public interest. It must follow that I accept the argument put forward by WG about that qualification calling into question any further need to consider any alternative since the case for the Minister's chosen published scheme is proven. However, I stress that, even setting that legal interpretation aside, I am certain that none of the strategic alternatives advanced by objectors was better than the published scheme. I therefore conclude that, as the published scheme is proven to be *expedient in the public interest*, no alternatives need to be considered further by Ministers with the exception of Alternative 11, an additional slip road at Magor Services which has merit [7.1-7.149].

Conclusions with regard to other Written Objections, from those not making statements to the Inquiry

8.478 There were a great many written objections to the scheme proceeding, most, but not all, in what appeared to be a prescribed form. For the most part, these objections and individual ones standing against the principle of the scheme are insufficiently particularised to require them to be fully assessed in detail, other than on issues that have been covered and reported on above. Many of these repeat the material points made by others often making general points of assertion and reported on in my conclusions on the merits and disadvantages of the scheme. In my judgement, these criticisms do not, either jointly or separately, outweigh the proof of public benefits that the scheme would bring, having regard to the totality of the objections to it. To my mind, there is nothing in the remaining written objections, either local or strategic, which would cause me to conclude that implementation of the scheme would have unacceptable adverse impacts.

Conclusions on Environmental Commitments

8.479 An extensive document (ID 009f) contains the register of environmental commitments and defines at paragraph 1.21 their role in the ongoing development process of the scheme. As has been consistently stated throughout this report, great weight is attached to these commitments. Several Inquiry sessions were devoted to discussions on commitments where Mr McCooey and I were able to delve deeply into issues. Objectors also attended and commented. I was clear that NRW relied on many of the commitments to address its concerns and worked extensively with WG to formulate solutions. I note that RSPB considered the commitments to be of great importance and engaged in very constructive dialogue leading to many detailed concerns being resolved. This work resulted in 10 iterations of the register. I commend these commitments to Ministers as a vital mechanism to ensure that the scheme is implemented in accordance with the ES and its mitigation plan.

The ultimate balance of argument for and against the scheme

8.480 There are valid and strong competing interests at issue here, which I have addressed in the body of the report and earlier conclusions. I now address the question of where the balance between them should be.

8.481 The scheme relates to a main part of the strategic motorway network of the UK and the most important road in Wales. I found the evidence of severe problems on this part of the M4 to be incontrovertible and the case for developing a scheme to address that issue overwhelming. The proposed motorway received widespread support across the breadth of South Wales, including the support of many local authorities and those concerned with industrial and commercial organisations all of which was very impressive. Remarkably, no local authority opposed it.

8.482 It is evident that the scheme has been a main policy aspiration of WG for years and I found that it would accord with local planning policies that have safeguarded its line in accordance within the relevant local development plans. The commitment to build a M4 relief road has been

and continues to be a part of national plans to meet the Government's well-being objectives and goals under the WBFG Act. The scheme would generally comply with Planning Policy Wales in terms of air quality, noise, agriculture, flood risk and economic development. There would be conflict with the policies on cultural heritage, landscape impact and nature conservation.

- 8.483 The process leading up to the decision by Ministers to publish the draft Schemes and Orders for a road-based solution to the evident problem considered a large package of practicable options, including alternative routes and public transport options before concluding that only a road-based solution would suffice. The consultation process was considered by an independent body to be "an exemplar", and to my mind demonstrates that the process accorded with the "ways of working" now enshrined in the WBFG Act. It is also significant that the M4 CaN Plan was the subject of an unsuccessful but detailed legal challenge on grounds similar to those pursued by some during the Inquiry. It was quite evident that sustainability has consistently been at the heart of WG policy plans and programs for years and there has been a clear legal duty on the Government to act in a sustainable manner since 1998. In a sense the more recent WBFG Act simply codifies and refines that basic duty and I have no difficulty in accepting that the overall process that took the scheme forward to the Inquiry has complied with the duties set out under the Act [4.1-4.19].
- 8.484 In terms of its effectiveness, it is evident that the scheme would reduce the traffic on the troublesome existing sub-standard motorway by half and would, at a stroke, solve the congestion problem, drastically reducing incidents, delays and pollution from which thousands of people would benefit. I am convinced would substantially reduce personal injury accidents as well. Without the scheme, the evidence points to traffic conditions substantially deteriorating relative to today's already unsatisfactory situation and, in all probability, the South Wales economy suffering further [4.79-4.86].
- 8.485 The scheme, when considered with risk and potential unforeseen developments, would be expensive and cost about £1.4 billion but I am persuaded that the high cost would give a positive economic rate of return, which has probably been underestimated in the evidence, and in removing travel uncertainty, negative perception and reality of frequent motorway delays, might well give a further economic boost to the region. If so, its positive rate of return would be enhanced so that it would provide even better value for money, in all probability classified as a good rate of return in Government investment terminology. Understandably there was widespread support for the scheme from the business and tourism sectors based on these arguments and issues [4.129-4.131, 4.133, 4.138].
- 8.486 The scheme would benefit bus services by removing congestion and uncertainty and would relieve the hard-pressed Newport SDR to enable that crucially important road to perform its collector - distributor function

efficiently. The scheme would also draw traffic away from less suitable main east-west roads with consequential environmental and economic benefits accruing over a large area. Excellent access to Newport residential and industrial areas and to Newport Docks would be provided from the proposed and existing motorways.

- 8.487 The scheme would provide a strategic highway which would serve the people of South Wales well for a period stretching well beyond the design year of 2039, and unlike the existing M4, easily accommodate the inevitable additional traffic which would undoubtedly use the motorway when the Severn Crossing tolls are removed. In traffic terms it can therefore be regarded as being sustainable development [4.79-4.81].
- 8.488 Many opposed the scheme, and setting aside the point that some objectors were opposed to Government policy of building any main roads, a larger number wanted public money spent on other projects. Some put forward undefined and broad public transport ideas as alternatives, but the main thrust of objections was focused against the scheme being built across the Gwent Levels and its SSSI's. There were many other local and individual points but that was the overwhelming issue advanced by resolute objectors. It is therefore necessary to put this real threat into context.
- 8.489 The Gwent Levels is a huge flat piece of land stretching from the outskirts of Cardiff to beyond the Second Severn Crossing and from the Severn Estuary to the industrial and commercial zones of southern Newport. Recognising the protected nature of the SSSIs within the Gwent Levels, WG deliberately set the alignment of the proposed scheme as far north as practicable, keeping the bulk of the Gwent Levels to the south. Even so, all parties agreed that the scheme would have a substantial adverse impact on the SSSIs and their qualifying feature of the reed network and its wildlife, and on other species, including birds and bees. However, the inescapable reality is that only about 2% of the Levels by area would be affected and approximately 2% of the reed network by length.
- 8.490 There is no question that the scheme would have a significant detrimental impact on the historic landscape of the Gwent Levels and whilst there can be some archaeological investigation and interpretation works, that impact cannot be mitigated. This must weigh against the scheme and I concur with the consensus that the local impact would be severe but confront those who unrealistically asserted that the scheme would destroy the SSSIs. Those assertions are wrong. Although I fully accept that there would also be significant impact on the Gwent levels SSSIs and species not least because it would exacerbate severance.
- 8.491 In such circumstances, much depends on the mitigation proposed to offset the severity of the impact and the effectiveness of the proposed drainage systems. In this regard it is clear that WG have taken extraordinary steps and have collaborated with NRW to replace the effected land, through the proposed compulsory purchase and conversion of suitable areas and the excavation of new reens and ditches which

would more than offset the damage caused by the scheme. They have also importantly engaged with NRW to perfect a management and maintenance regime from which successful mitigation should ensue. In fact, to put that into further context, in the medium term the Levels would be larger and ecologically in better condition than they are today. In expressing satisfaction that WG's approach to mitigation has been very thorough I quote the reaction of NRW who confirmed that it was "*the best that it could be*". However, no one doubts the severity of the impact in the interim period although it is a salient fact that each year de-silting and cropping affects a far larger percentage (about 14%) of the reed network than that which would be affected by the scheme (about 2%).

- 8.492 WG has also worked closely with NRW and has developed agreed mitigation strategies for affected species such that the issues of the necessary licences are unlikely to be withheld. WG has collaborated with NRW to address all concerns raised and this has culminated in a very large degree of agreement sufficient to allow NRW to report that most of its concerns had been addressed. In particular I draw attention to the comprehensive statements of common ground and the environmental commitments that have been prepared. The joint collaborative work to ameliorate the effects on protected species has been particularly impressive. I cite the proposed measures for Cranes and Dormice as good examples of this. However, it is critical that the promises made in the environmental commitments and SOCGs are carried through into the construction, monitoring and long-term after-care periods and I have full confidence that they would be. The unavoidable adverse impacts on the Gwent Levels SSSIs must weigh against the scheme but I am content that all possible reasonable steps have been taken to mitigate those impacts.
- 8.493 Beyond the ecological effects is the agreed position that the historic landscape of the Gwent Levels would be adversely affected by the scheme and that could not be mitigated. Whilst the adverse effects on the SSSI's may be temporary the effect on the historic landscape, and on heritage assets, would be permanent, although the proposals to relocate Woodlands House and the barrage balloon tethering site would reduce the impacts and it is noteworthy that Cadw has not objected to the scheme.
- 8.494 The impact on the Newport Docks from the initial publication of draft Schemes and Orders would have been unacceptably severe. However, following extensive discussions, proposals have been made for incorporation into the scheme which would reduce the severity of the impact to one that is relatively minor, and the accommodation works which would be incorporated in the scheme would eventually largely balance those effects and provide satisfactory working infrastructure for the Docks. It can therefore be concluded that the issue over the internal management of the Docks is relatively neutral in weighing the balance of whether to proceed with the scheme but the proposed almost direct access to the Docks from the motorway would provide a significant improvement relative to the current situation and adds weight to the case

for the scheme.

- 8.495 WG has also worked directly with all affected land owners and residents and a great deal of agreement has been reached between the parties to the extent that I am satisfied that the modifications and accommodation works proposed would render the outstanding objections largely matters of compensation.
- 8.496 Having considered all the objections to, and advantages of the scheme, I am mindful of the unavoidable fact that maintaining efficiency on the motorway network is a transport priority for Wales and measures are clearly and urgently needed to address the particular problem with the M4 around Newport. I conclude that the balance falls clearly on the side of constructing the scheme from which so much public benefit would accrue. Compensation would be payable to those directly impacted, and in my view, with the dedication promised, the adverse ecological effects of the scheme can be satisfactorily mitigated by the medium term.

The proposals for Caerleon Road and the new trunk road

- 8.497 In my view, the proposals for downgrading the status of the existing M4 are compatible with those of constructing the new motorway and, recognising the halving of traffic volume, would provide an efficient trunk road. Having said that, I draw attention to an objector's concern, expressed at a round-table session of the Inquiry, that the final design of the layout of the approaches to the westbound Brynglas Tunnel needs technical care. I support that request because of the potential conflict of westbound traffic movements at that location and recommend a localised and concentrated road safety audit be undertaken to bring focus to this point [4.127, 4.128].
- 8.498 The creation of a direct link from Caerleon Road, Newport to the existing M4 westbound would be considerably beneficial for local motorists, economically advantageous and a positive move in removing polluting urban traffic from central Newport. The residual capacity of the trunk road would be sufficient and its alignment much more in keeping with its future status than the present. I am convinced that these proposals for the new trunk road are expedient in the public interest and satisfy the test set out in paragraph 8.7. I conclude that the proposals for the trunk road should be endorsed [4.127].

The proposals over navigable waterways

- 8.499 The proposed line of the scheme, in crossing through Newport Docks on a viaduct and over the navigable waters within the Docks and outside, gave rise to a substantial amount of collaborative work between ABP, WG and others, the result of which was agreement that the scheme should proceed subject to well-documented caveats between ABP and WG on the scope of the works required within the Docks. Some objections from statutory tenants of ABP remained but none were, in my view,

substantial. Those statutory bodies responsible for security, navigation and the environment removed their earlier objections, enabling a satisfactory package of marine safety measures and accommodation works to emerge from the long-succession of collaborative efforts [4.98-4.102]. I note that the Newport Harbour Commissioners are satisfied with the final package of measures and I am content that the end-result would satisfactorily address reasonable requirements of navigation and safety within the Docks and outside, subject to my earlier suggestions about fire protection for the underside of the viaduct in the docks. I conclude that the reasonable interests of navigation would be catered for by the scheme and the test outlined in Section 107 (1) and (2) of the Highways Act 1980 would be met by the making of the Schemes and the construction of a swing-bridge across the Junction Cut [4.98-4.102].

Conclusions with regard to the Highway Line Schemes and Orders

I am satisfied that the proposed changes to the motorway and trunk road network would, bearing in mind the requirements of local and national planning, including the requirements of agriculture and the law, be expedient and in the public interest for the purposes of improving the national system of routes for through-traffic in Wales.

- 8.500 The scheme, built in accordance with the Schemes and Orders, would bring huge public benefits to South Wales and produce clear local health and environmental benefits in Newport but it would come at a significant cost in crossing over the Gwent Levels, its rare environment and landscape and adversely impacting on agriculture and communities. It would be costly but provide good value for money. Despite doubting voices representing two objectors, the balance of probability is that the scheme would give a significant boost to the economy of Newport and across South Wales as advocated by those many supporters from local authorities, national bodies, economists, commerce and industry [Section 5, 6.113-6.131, 6.133, 6.135, 6.137].

Conclusions with regard to the Side Roads Order

- 8.501 I have closely studied the schedules and plans of the two Side Roads Orders and have considered all the suggested modifications. There is no evidence to suggest that any party would be adversely prejudiced by these modifications. All proposals in respect of temporary or permanent private means of access or side roads are reasonable but I accept, as inevitable, that some complex circumstances would cause temporary difficulty for a few during the construction period. I note that WG would frequently liaise with the affected parties and I draw attention to that essential need. Particular concern was expressed about the interference to Tyn-y-Brwyn (even with a modification to the Order), The Beeches and the temporary closure of Knollbury Lane. In my opinion these justifiable proposals would be made acceptable by the early provision of passing places along the route of the alternative highway to Knollbury Lane and constant surveillance in respect of the needs of The Beeches. I conclude that the tests set out for the two Side Roads Orders at paragraph 8.10

have been met subject to the above requirements [6.109-6.112, 6.81, 6.82, 6.733-6.739].

Conclusions with regard to the Compulsory Purchase Order

- 8.502 I have also closely studied the schedule and plans accompanying the CPO and can find no evidence of any proposal to purchase any land or rights other than those necessary to implement the scheme, with the exception of those plots proposed for modification at Annex D of this report and CPO plots 6/4y, 14/4b, 15/9m, 16/17c and 17/6a, for which I can find little justification in the evidence and none that is, to my mind, compelling. In my opinion the CPO should be modified to exclude these plots. Apart from these plots I am satisfied that WG demonstrated the need for all other plots, having regard to the proposed list of CPO modifications at Annex D.
- 8.503 No compelling evidence was adduced to identify any potential impediment to the scheme proceeding, although a number of further consents would be required in respect of the Docks. It seemed to me that all those that would be needed were identified to the Inquiry and have been recorded. Powerful and persuasive evidence emerged during the Inquiry to show that the construction of the scheme would not be unlawful, but I draw attention to the legal issues upon which I have offered comment above. Government funding has been earmarked for the project, which is proposed for an early start following the completion of statutory procedures, by virtue of which, no premature acquisition of land was apparent.
- 8.504 I conclude that, subject to these points, the tests set out at paragraph 8.9 for the compulsory purchase of the land and rights needed for the construction and maintenance of the scheme by the Welsh Ministers have been met.

Conclusions on the Modifications to the Schemes and Orders

- 8.505 I have studied each of the proposed modifications set out at Annex D of this report and I am content that, if adopted, they would not prejudice any party. I am also satisfied that none of them would substantially change the Schemes or Orders within the meaning of the Highways Act Schedule 1 Part 1 Section 8(3), thereby obviating the need for further representations to be sought on these modifications.

Conclusions with regard to the issue of Section 19 Certificates

- 8.506 Following my study of the cases for the acquisition of both common land and statutory allotment land and my inspection of the respective sites earmarked as replacement land, I conclude that:
- the areas of replacement land exceed that to be acquired;
 - the quality of the replacement land would be satisfactory;
 - the locations proposed for the replacement lands would be equally advantageous to those with interests in the lands, and
 - the compulsory purchase of the replacement areas is justifiable in the public interest.

It follows that, as these tests have been met in respect of the common land and statutory allotments affected, I am content that Ministers can issue the appropriate Section 19 Certificates under the Acquisition of Land Act 1981 [4.152-4.155].

Overall Conclusions on the Scheme

- 8.507 In my view, there is a compelling case for the scheme to be implemented in order to relieve an acute problem on the strategic motorway network. The Line Schemes and Orders are acceptable, two of them modified in accordance with Annex D. It is accordingly my view that the scheme is in the public interest, it satisfies the test defined at paragraph 8.7 above and should be allowed to proceed despite the sensitive landscape and environment through which it would pass. The scheme would not, to my mind, have any disproportionate adverse impacts. In coming to this view, I have had regard to my observations of the area and the site, all statutory and non-statutory objections, representations and statements made in writing and oral presentations to the Inquiry, but individually or collectively, they do not outweigh the conclusions I have reached.
- 8.508 I have also had regard to the cases set out for all the alternatives proposed by objectors, to the support for the alternatives and the counter-objections against them made at the Inquiry or in writing, but individually or collectively, they do not outweigh the conclusions I have reached in respect of those alternatives.

9. **RECOMMENDATIONS**

Line Schemes and Line Orders.

I recommend that:

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- be modified in accordance with Annex D and as modified be made.

THE LONDON TO FISHGUARD TRUNK ROAD (EAST OF MAGOR TO CASTLETON) ORDER 201- be modified in accordance with Annex D and as modified be made.

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- be made.

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- be made.

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- be made.

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) (NO.2) SCHEME 201- be made.

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) (NO. 2) SCHEME 201- be modified in accordance with Annex D and as modified be made.

Side Roads Orders

I recommend that:

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- be modified in accordance with Annex D and as modified be made.

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) (SIDE ROADS) ORDER 201- be made.

Compulsory Purchase Orders

I recommend that:

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- be modified in accordance with Annex D and subject also to the exclusion of 5 plots of land detailed at paragraph 8.502 of this report and as modified be made.

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- be modified in accordance with Annex D and as modified be made.

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 (NO. 2) COMPULSORY PURCHASE ORDER 201- be made.

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 (NO. 3)

COMPULSORY PURCHASE ORDER 201- be modified in accordance with Annex D and as modified be made.

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 (NO. 4) COMPULSORY PURCHASE ORDER 201- be modified in accordance with Annex D and as modified be made.

I further recommend that:

The Section 19 Certificates be issued

W S C Wadrup

Inspector

ANNEX A - APPEARANCES AT THE INQUIRY

For WG

Ms Morag Ellis QC, with Mr Emyr Jones of Counsel, as Advocates for WG, who were instructed by Mr Charles Felgate and Ms Natalie Harries of Geldards LLP, acting on behalf of WG. They called:

Mr Matthew Jones BEng (Hons), CEng, MICE	Chief witness.
Mr Bryan Whittaker FCIHT	Traffic and modelling
Mr Stephen Bussell BSc (Hons), MIED	Economics
Mr Andrew Meaney BSc (Hons), MSc	Port economics
Mr Ben Sibert BEng, CEng, FICE, MIStructE, MCIHT	Engineering and design
Mr Barry Woodman BSc (Hons), MBA, CEng, FICE, FIHE, MCIHT	Construction matters _____
Mr Mike Finlay BSc (Tech) (Hons), CEng, FICE	Construction matters
Dr Peter Ireland MA(Oxon), DPhil	General environment matters
Mr Nicholas Rowson BSc (Hons), BLD, CMLI, MIHort	Landscaping
Mr Mick Rawlings BA (Hons), MIFA	Cultural heritage
Mrs Julia Tindale BSc (Hons), MIsoil,	Land, community, recreation
Mr Andrew Clifton BSc (Hons), MSc, CEng, FGS, CEnv, CSci	Contamination Air quality and pollution
Dr Michael Bull, CSci, FIAQM, MIEEnvSc & ChemE, BSc, DIC, PhD, CEng,	Carbon Noise and vibration
Mr Tim Chapman FICE, FIEI, FREng	Noise and vibration
Mr Philip Evans BSc (Hons), MSc, FGS, MIOA	Water quality
Mr Richard Graham BSc (Hons), MSc, FGS	Tidal flooding
Dr Paul Canning BEng, (Hons), PhD, CEng, MICE	Fluvial flooding
Mr Michael Vaughan BEng (Hons), Exon, CEng, CWEM	_____
MICE, MCIWE	Ecology and nature Ecology, dormice, water voles

Dr Keith Jones BSc, PhD, MRSB, CBIol,	Ecology and bats
Mr Jonathan Davies BSc (Hons), MSc, CEnv, MCIEEM	Ecology (ornithology)
Mr Richard Green BSc, MCIEEM, CEnv, Soc Env	Shipping
Dr Simon Zisman BSc, MSc, PhD, MCIEEM	Sustainable development
Mr Jonathan Vine MNI	Draft Schemes and Orders
Mr John Davies MBE, BSc, MRTPI	Draft Schemes and Orders
Mr Thomas Edwards MEng, CEng, MICE, MCIHT	Detailed correspondence
Mr Geraint Jones MEng, GMICE	Departures from standards
Mr Stephen McAllen CEng	Departures from standards
Mr Andrew Jones CEng	
Mr Simon Lawrence CEng, MICE	

As Supporters of the Scheme

Mr John Evans BSc (Eng) Hons, ACGI, DIC, CEng, FICE, FWeldI

of the ICE retired engineers' group

Mr Ian Price, Mr Chris Sutton MRICS and Mr Michael Plaut of the CBI

Ms Denise Lovering of the Freight Transport Association

Mr Jonathan Price, the Chief Economist WG

Mr Eddie English, a resident of Rogiet

Mr Tim Gent of St Modwens Developments.

As Statutory Objectors to the scheme.

Representing Community Councils

Mr Richard Dean BSc (Hons), MArch(Dist), FRMetS, FRSH, IHBC, RIBA, SCA
of Wentlooge Community Council.

Councillors Robert Stallard and F Oliver-Holland of Rogiet Community Council.

For the Magor with Undy Community Group.

Councillor Frances Taylor and Dr Mario Bisi MPhil, PhD, FRAS, MInstP

For Marshalls Mono Ltd

Mr Richard Glover, Solicitor of Squire Patton Boggs, who called

-Mr Andrew Johnson RICS

-Mr Henry Church RICS

For Parc Golf Club

Mr M O Davies FRICS, FAAV of Newland Rennie who called:

-Mr B Weller (golf course consultant) and Mr T Hicks (owner)

For Green Dairy Farm, Rogiet

Mr M O Davies FRICS, FAAV of Newland Rennie who presented evidence for and called

-Mr S C Phillips of Green Dairy Farm

- Mr M Pritchard of the Beeches

For various agricultural clients

Mr M O Davies FRICS, FAAV of Newland Rennie who presented evidence for:

Ms Alison Park

Messrs R, G, K, M and R Jones of New Park Farm, Castleton

Mr Morris of Newland Rennie who represented:

Mr Rabbitt of Daffodil Lodge

For Associated British Ports

Mr Andrew Tait QC, instructed by Mr Brian Greenwood of Clyde & Co who called:

Mr Philip Rowell of ABP

Mr Michael Stacey of ABP

Mr Matthew Kennerley of ABP

For Natural Resources Wales

Mr Justin Amos of Natural Resources Wales (NRW)

Mr Richard Wald of Counsel who called:

-Ms Jessica Poole for Natural Resources Wales

Mr Gary Purnell

For Gwent Wildlife Trust

Mr Alasdair Henderson of Counsel who called:

- Professor Calvin Jones,
- Professor John Whitelegg and
- Professor Loraine Whitmarsh

Mr Charles Stretten of Counsel who called:

- Professor John Altringham
- Professor Anderson
- Mr David Boyce
- Mr Geoff Liles
- Mr James Byrne

Mr Brendon Moorhouse of Counsel who called:

- Professor Marsden

Ms Irena Sabic of Counsel who called:

- Mr Richard Bakere
- Mr Richard Barnes.

Cross-examining of WG witnesses on behalf of Gwent Wildlife Trust was undertaken by a team of Counsel, details of which are set out as follows (ID/225):

Mr Charles Streeten, who cross-examined Mr Richard Green and Mr Jonathan Davies (over various days).

Mr Brendon Moorhouse, who cross-examined Mr John Davies.

Ms Hannah Noyce, who cross-examined Mr Tim Chapman and Mr Steve Bussell.

Ms Irena Sabic, who cross-examined Mr Nick Rawson.

Ms Charley Pattison, who cross-examined Mr Brian Whittaker, Mr John Davies and Mr Steve Bussell.

Mr Alasdair Henderson, who cross-examined Mr Bryan Whittaker.

Further cross-examination on behalf of GWT was conducted by Mr James Byrne, acting as Advocate, who cross examined Dr Michael Bull, Mr Jonathan Davies, Mr Richard Green and Mr Matthew Jones.

For the Woodland Trust Ms Irena Sabic of Counsel who cross-examined Dr Peter Ireland.

For Friends of the Earth (Cymru) Mr Alasdair Henderson of Counsel.

As Non-Statutory Objectors to the scheme

Individual objectors

Mrs Carol Jacob, a resident of Gwent

Mr Andrew McDermid, a resident of Gwent

Ms Pippa Bartolotti of the Wales Green Party

Dr Catherine Linstrum PhD, a local resident

Mr T N D Anderson BSc, BA, MSc, FCILT of PACE Transportation Ltd

Mr Alan Wilkins of The Light Rail Transit Association

Mr Paul Cromwell, a resident of Rogiet

Ms Jane Blank, a resident of Gwent

Mr Tyrone Broome, a resident of Llandevenny

Mr A Pickup, a resident of Llandevenny

Dr Diana Callaghan, PhD, a resident of Marshfield

Mrs Louise Davies, a resident of Gwent

Mrs Ann Picton MBE, a resident of St Brides, Wentlooge

Mrs Ellen Law, a resident of Gwent

Mr I Brooks-Jones, a resident of Gwent (oral evidence)

Mr Geoff Wynton and Mr Mike Smith, residents of Rogiet and promoters of the Green Route, Alternative 3

Mr Robert Waller for himself and Wildlife Trusts Wales

For Roadchef

Mr Rhodri Price-Lewis QC who called:

-Mr Simon Turl

-Dr McKay

For the Campaign for the Protection of Rural Wales

Ms Irena Sabic of Counsel who called:

-Mr Peter Ogden

For Cycling UK

Mr Dominec Rush-Keene of Counsel who called;

-Professor Stuart Cole, Mr Geffen, Dr Melia and Dr Hugh Mackay

For Friends of Earth Cymru

Mr Gerald Kells

*(Mr Kells was assisted by Mr Brendon Moorhouse of Counsel who cross-examined WG on behalf of F of E Cymru)

As a Counter Objector to Alternatives

Mr Tim Gent of St Modwens Developments who opposed Alternatives 1 and 2.

ANNEX B - Written Responses to Questions Raised whilst the Inquiry was sitting (PIQs)

- PIQ01 Identity of OBJ/106
- PIQ02 Status of SUP/146 and SUP/181
- PIQ03 Clarification of position of Newport City Council
- PIQ04 Changes between TEMPRO 7.1 Interim for Wales and TEMPRO 7.2
- PIQ05 Land Take within the Gwent Levels/ Area occupied by the Levels
- PIQ06 Degree of enhancement of Gwent Levels
- PIQ07 Plan of M4 junction numbers
- PIQ08 CIEEM 2008
- PIQ09 Business community support examples
- PIQ10 Comparison between existing and proposed M4
- PIQ11 Supplementary bat surveys
- PIQ12 Assessment of safety and accident risks in the Port
- PIQ13 Planning application for two wind turbines at Great House Farm, Undy
- PIQ14 River Usk Crossing East Pier - Otter passage at construction site
- PIQ15 Bats – Table clarification
- PIQ16 Reference to a disused lime kiln used as a bat roost
- PIQ17 Chief Witness-evidence clarifications
- PIQ18 Traffic-evidence clarifications
- PIQ19 Engineering-evidence clarifications
- PIQ20 Noise & Vibration-evidence clarifications
- PIQ21 Ecology & Nature Conservation-evidence clarifications
- PIQ22 Ancient Woodland inventory relative to woodland at Pye Corner
- PIQ23 Lengths of Reens and Ditches across the Levels
- PIQ24 Docks Way Link: Select link analysis
- PIQ25 Landscape Environmental Masterplans (EMPS)

- PIQ26 Flood Consequences Assessment PoE Proof of Evidence-clarifications
- PIQ27 Tidal Flooding Proof of Evidence-clarifications
- PIQ28 Land Use, Community and Recreation Proof of Evidence-clarifications
- PIQ29 Economics Proof of Evidence - clarifications
- PIQ30 Dormice and water voles Proof of Evidence - clarifications
- PIQ31 Aerial photographs of Scheme and Environmental Management Plans
- PIQ32 Liaison with the Port Security Authority
- PIQ33 Issues of Contaminated materials within highway embankment
- PIQ34 Not Allocated
- PIQ35 Congestion at the Docks Way Tip Entrance
- PIQ36 Water Quality Proof of Evidence-clarifications
- PIQ37 Carbon Proof of Evidence-clarifications
- PIQ38 Construction Proof of Evidence-clarifications
- PIQ39 List of stakeholders within Newport Docks
- PIQ40 Magor Station
- PIQ41 Qualifications of those who have given evidence
- PIQ42 Extent and depth of landfill waste within Docks Way landfill
- PIQ43a The Schemes and Orders definitions (revised)
- PIQ44 Location of redundant benzene pipeline
- PIQ45 Refuse Tip location and depth in relation to CL-15
- PIQ46 Planning & Sustainable Development Proof - Evidence Clarifications
- PIQ47 Compatibility of M4 J28 Improvement with the Schemes and Orders
- PIQ48 Cultural Heritage Proof of Evidence - clarifications
- PIQ49 Ornithology Proof of Evidence - clarifications
- PIQ50 Closure of the navigable waters of Newport Docks during Construction
- PIQ51 Dormouse presence at Woodview woodland
- PIQ52 Glan Llyn Junction-employment allocation review

- PIQ53 Proposed road lighting strategy
- PIQ54 Confirmation of consultations on Modifications of Scheme / Line Order
- PIQ55 Contractor's share of risk breakdown
- PIQ56 Volumes of contaminated soils requiring off-site disposal
- PIQ57 Piling the Usk viaduct adjacent to the PCB cell
- PIQ58 Mr Cromwell's alternative
- PIQ59 Land acquisition of all properties for M4CaN
- PIQ60 Rogiet traffic levels
- PIQ61 Minimum distances between Junctions
- PIQ62 Mr Nick Rowson's evidence to the Inquiry Slide 8
- PIQ63 Water treatment area access North Row
- PIQ64 Docks site visit
- PIQ65 Shipping cargo carrying capacity
- PIQ66 First Minister's comments of 04 April 2017
- PIQ67 Rushwall bridleway
- PIQ68 Metro delay effect on BCR
- PIQ69 Reen cutting technical proposals of WG
- PIQ70 'Hold the Line' Flood policy of the WG
- PIQ71 Local wage data-reissue of document
- PIQ72 Distance of scheme from the property known as Woolgar
- PIQ73 Response to air quality questions from Mrs Ann Kenny
- PIQ74 Response to ABP - Clarification of Evidence of Andrew Meaney
- PIQ75 Landscaping and Borrow Pits
- PIQ76 Distances from the scheme to All Saints Church
- PIQ77 Existing M4/A48 around Castleton drain
- PIQ78 Position paper for Transport and Climate Change for Wales
- PIQ79 Long-section of the Green Route

- PIQ80 Junction capacity at the Docks Link
- PIQ81 Departure from CADW National Policy - superseded
- PIQ81r1 Revised departure from CADW National Policy
- PIQ82 Newport City Councillor Richard White
- PIQ83 Bats Proof of Evidence-clarification (revised)
- PIQ84 Port economics - Proof of Evidence Clarification
- PIQ85 Haul-road route from Ifton Quarry
- PIQ86 Local traffic on M4 around Newport
- PIQ87 Accident cluster sites in Newport
- PIQ88 Development at Duffryn High School-the John Frost School
- PIQ89 not allocated
- PIQ90 Qualifications of Mr Stephen McAllen
- PIQ91 INRIX-Traffic hotspot report and data
- PIQ92 MIDAS Hourly Traffic Growth
- PIQ93 Ben Sibert evidence - Elucidation to NRW
- PIQ94 Mike Vaughan evidence - Elucidation to NRW
- PIQ95 Barry Woodman evidence - Elucidation to NRW
- PIQ96 Setting of designated Heritage Assets Green Route
- PIQ97 Llanfihangel Rogiet Conservation Area
- PIQ98 Footprint of Glan Llyn junction inside and out of the Gwent Levels SSSI
- PIQ99 Works that will be undertaken to the reclassified M4.
- PIQ100 Setting of Designated Heritage Assets Green Route - Questions raised
- PIQ101b A4810 Land Ownership and Highway Authority Position (revised)
- PIQ102 Length of Carriageway in each SSSI.
- PIQ103 Modifications requested by WG.
- PIQ104 Mitigation land in the SSSI
- PIQ105 Size of Environmental Mitigation Areas outside the Highway Boundary

- PIQ106 Woodland Planting Western End of the Scheme
- PIQ107 Revised Traffic Forecasting Report, Figure 10.15
- PIQ108 Gwent Wildlife Trust, Cross Examination on Bats
- PIQ109 Update on OBJ 224 – Trustees of F. H James
- PIQ110 Local traffic on M4 around Newport
- PIQ111 Objectors' Alternatives- Promoters and Objectors references
- PIQ112 Alternative Route Suggestion from Mr S C Phillips - Brynglas cutting
- PIQ113 Dr Diana Callaghan – Site visit questions and answers
- PIQ114 Wentlooge C C – footprint of the scheme across St Brides SSSI
- PIQ115 Effects of Alternative 11 on the B4245
- PIQ116 Update on the status of WG's discussions with ABP
- PIQ117 Traffic effects of Alternative 11 on the B4245
- PIQ118 Queensway Meadows site within the SSSI
- PIQ119 Usk pollution prevention lagoon and invertebrates within the SSSI
- PIQ120 Non-motorised user routes over the Usk viaduct
- PIQ121 Questions from Inspector following alternatives roundtable meeting
- PIQ121a Inspector's challenge on the cost of Alternative 22
- PIQ121b Update to list of suggested Alternatives
- PIQ122 Modifications 19 and 63 (NCC & MCC)
- PIQ122a Acceptances of Modifications 19 and 63 (NCC & MCC)
- PIQ123 Answers to questions from Roadchef Ltd
- PIQ124 Objection numbers against various draft orders
- PIQ125a Access arrangements arising from Knollbury Lane closure
- PIQ126 Response to questions about accident data on the Roadchef case
- PIQ127 Dates of publication of draft Orders and Schemes
- PIQ128 Gwent Levels site visit attendees
- PIQ129 Width of Junction Cut in the Newport Docks

- PIQ130a Further response to questions from Inspector of 20 September 2017
- PIQ131 Response to bug of life statement on the effectiveness of mitigation
- PIQ132 WG response to joint statement of NGO Environmental Group
- PIQ133 Questions raised at Blue Route site visit with Prof Cole
- PIQ134 Explanation of how campaign objections were identified
- PIQ135 Area proposed to be taken by scheme compared to Caldicot Levels
- PIQ136 Absorptive noise barriers
- PIQ137 Queensway Meadows site visit
- PIQ138 Agricultural land classed as permanent or temporary land take
- PIQ139 Update on Statutory Undertakers objections
- PIQ140 Definitions of draft Schemes and Orders
- PIQ140a Modifications and Supplementary Orders
- PIQ141 Qualifications of those who have given evidence
- PIQ142 Correspondence with Mrs Ann Kenny
- PIQ143 M4 and strategic roads carrying capacity east and west of scheme
- PIQ144b Summary of site visits carried out by the Inspectors
- PIQ145 Innovations on the scheme
- PIQ146 Update to evidence of Mr John Davies (CD5.2.9 and 5.2.10)
- PIQ147 Inspector's questions 24th October 2017
- PIQ148 Mrs Julia Tindale's evidence in hectares and acres
- PIQ149 Responses to ES Supplement
- PIQ150 Rational behind ESS4, ESS5 and ESS6 by Dr Ireland
- PIQ151 Response to Inspector's Questions on Agricultural Land and MOD 30
- PIQ152 Updated economic appraisal of alternatives (increases in cost & traffic)
- PIQ153a Westbound free-flow link - design standards update
- PIQ154 Questions from Inspector re environmental documentation
- PIQ155 Alternative 3 Economic Update following predicted traffic increases

- PIQ156 Mr Waller's suggested alternative
 - PIQ156a Mr Waller's suggested alternative- 15/03/18
 - PIQ156b Mr Waller is suggested alternative 28-additional notes and tables
 - PIQ156c Updated submission on Mr Waller's suggested alternative 28
 - PIQ157 Legal points submitted on 8 March 2018
 - PIQ158 Clarification of need for CPO plots 1/4J and 15/11a
 - PIQ159a List of statutory orders as revised
 - PIQ160 Works at Maerdy Farm
 - PIQ161 Final economic appraisal of Alternatives 12, 23 and 24
 - PIQ162 Rail freight considerations
 - PIQ163 Merging and diverging flows at junctions
 - PIQ164 List of questions from the Inspectors and answers
 - PIQ165 Answers to questions from Dr Peter Varley
 - PIQ166 Questions from the Inspector re-bridge protection measures
 - PIQ167 Traffic Regulation Orders
 - PIQ168 Transport user benefits assessment and speed flow curves
 - PIQ169 Case of Wealden DC v SSCLG, Lewes DC, South Downs NPA etc
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ANNEX C – Inquiry Documents (IDs) Submitted during the Inquiry

ID01	PIM Notes (PIM 1)
ID02	PIM Notes (PIM 2)
ID03	Opening Statement of Ms Morag Ellis QC (revised)
ID04	Updated scheme context diagram
ID05	Extract from Inspector’s opening remarks – Support/Objection
ID06	Latest flythrough video
ID07	Update of Landowner Table (ID/007a, b, c, c revised)
ID07d	Final update about agricultural concerns
ID08a	Revised statement of confirmation of statutory processes
ID09f	Final version of commitments register
ID10	Documents submitted following Reen discussion on 15.03.17
ID11	Update to Engineering Proof of Evidence
ID12	New Road Infrastructure: The Effect on Firms
ID13	Summary brochure - March 2017
ID14	Transport investment, economic performance: Implication appraisal
ID15	Email from Gwent police re Motorway Junction 29 to Junction 23
ID16	Dr Catherine Linstrum’s reply to rebuttal of her evidence from WG
ID17	Objectors’ Alternatives-Public Notice of them
ID18	Level of hard shoulder provision on the existing M4
ID19	Woodland House – Listed Building Consent for Demolition Letter
ID20	Supplementary Order for Eastbound Off Slip Road at Magor
ID21	Objectors' Suggested Alternatives - March 2017
ID22	Objectors' Suggested Alternatives – Materials/Communication
ID23	Costings from Ms Pippa Bartolotti on the light rail/tram proposal
ID24	Transport investment, economics: Implications for project appraisal
ID25	Information from CBI as mentioned at Inquiry

ID26	Gwent Wildlife Trust - Legal Note
ID27	'The end of the road?' submitted by GWT
ID28	Transportation Ltd - 'Written Evidence submitted by David Metz'
ID29	Visit to Newport Docks
ID30	Green Route Support / Objection Correspondence
ID31	ES Supplement April 2017 plus associated Supplementary Orders
ID32	Environmental Master Plan Updates
ID33	Letter to Mrs Howe, the F G Commissioner for Wales (rev 2/5/17)
ID34	Joint Statement by the M4CaN Environmental NGO Group
ID35	Correspondence relating to the Blue Route
ID36	not allocated
ID37	Elucidation Questions for ABP
ID38	Statement of Common Ground between Mr Cromwell (O99) and WG
ID39a	Temporary surface water ditch and piped re-en crossing maintenance
ID40	PLI slides and docs used by Jonathan Vine on 21/03/17
ID41	The Blue Route counter-objections and support correspondence
ID42	Gwent Wildlife Trust- drawing of Magor Marsh
ID43	Induced Traffic
ID43a	Induced traffic for no-toll scenario ID44
	The Impact of Road Projects in
England ID45	Improving air quality in the UK
ID46	M4CEM Package 3 Workbook – Inc. assessing junction closure effects
ID47	1:2500 scale O S Plan of Newport and surrounding area from 2013
ID48	Signed Statement of Common Ground: Flood risk - between WG/NRW
ID49	SSSI mitigation strategy
ID50	Bovis Homes land holding SAH6

ID51a	Bat crossing monitoring reports requested by Gwent Wildlife Trust (revised)
ID52	IDB Reen and NRW main river designations across the Gwent Levels
ID53	Water quality - Statement of Common Ground
ID54	Surface water monitoring protocol - superseded
ID54a	Revised surface water monitoring protocol
ID55	Draft dormouse mitigation strategy
ID56	Bat mitigation strategy - superseded
ID56a	Revised Bat Mitigation Strategy
ID57	Updated assessment about bats at Berryhill Farm
ID58	Notes of Meeting concerning IDD matters on 10/04/17
ID59	Correspondence with Dr Catherine Linstrum
ID60	M4CaN tidal flooding technical note
ID61	National Designated Sites Statement of Common Ground
ID61	Signed National Designated Sites Statement of Common Ground
ID62	Alternative Routes Counter Objections and Support Correspondence
ID63	NRW Correspondence - superseded
ID63a	Revised NRW Correspondence
ID64	Supplementary Evidence – Port Economics
ID65	Vehicle speeds for Welsh motorways, April to June 2016
ID66	Email Response to Cycling UK dated 18/05/17
ID67	Impact of the CPO on ABP's Newport Docks
ID68	Experience of otter surveyors
ID69	Not allocated
ID70	CPO (draft Supplementary (No3)) - works within Newport Docks
ID71	DRMB Volume 10 Section 1 Part 9-HA81/99
ID72	Advice on the design of Welsh carbon targets

ID73	Public Transport Note
ID74	Gwent Wildlife Trust Annual Review 2011-2012
ID75	Llandeenny residents - adverse noise affecting the community
ID76	Objections Withdrawn on 5/5/17 (revised on 8/2/18)
ID76b	Complete list of objections withdrawn at the end of the Inquiry
ID77	Heritage Impact Assessment in Wales
ID78	Scheme evidence updates - to reflect the March 2017 inclusion of an eastbound off-slip road at J23A
ID79	ABP Response to Elucidation Questions
ID80	Woodland Trust Correspondence Re: Pye Corner ancient woodland
ID81	Bat Survey of Woodland House, Magor
ID82	Figure TSR2.4 General Arrangement Drawing Sheet 13 of 16 M4CaN
ID83	Mr Mike Smith Planning Portal Response in respect of Woodland House
ID84	not used
ID85	CADW Listed Statement - Woodland House
ID86	Mr Clive Rabbitt of Daffodil Lodge (O209)
ID87	Dormouse Mitigation Strategy
ID88	Legal letter and reply to Minister Ken Skates from RSPB and GWT
ID89	Rontec Correspondence confirming allegiance to Roadchef objection
ID90	Distances to various locations re Objection 314 Magor/Undy
ID91	M4CaN - Road Safety Audit Report Addendum 2
ID92	Value for Money Assessment for Cycling Grants (re Cycling UK case)
ID93	Road Safety Audits
ID94	Statement of Common Ground of WG and Roadchef Ltd
ID95	Stage 1 Road Safety Audit Briefing
ID96	Support from Cardiff City Council Leader
ID97	National Grid withdrawal letter

ID98	Proposed train building site at Glan Llyn
ID99	Site visits schedule
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ID100	The Climate Change Committee's 2017 Report to Parliament (F of E)
ID101	E mails jointly from Mr Jeremy Randles (and Ms Blank)
ID102	Response concerning Woodlands House
ID103	Mrs Ann Picton's Alternative (J24-J26) Tunnel proposal
ID104	Statement of common ground about bats
ID105	Statement of common ground on protected species
ID106	WG response about otters and to Mr Liles evidence
ID107	Update on agricultural objections and WG 1.1 0.2
ID108	Draft Order Supplements (Newport Docks) August 2017
ID109	Objection letter to Inspector Future Generations Commissioner 13/9/17
ID109a	Corrected objection letter from Future Generations Commissioner
ID110	Article written by the Chief Executive of Gwent Wildlife Trust
ID111	Letter from director RSPB to the Minister
ID112	Bovis Homes letter of withdrawal
ID120	Aerial view of Green Route (alternative three) and Tata Steelworks
ID121	Letter of support for the scheme from Mr Paul Flynn MP Newport West
ID122	Committee Report on the Rail Franchise and the South Wales Metro
ID123	Correspondence from Mr J Byrne about delays in information delivery
ID124	Correspondence between WG and Surf Telecom
ID125	New policy documents on Prosperity for all and Well-being in Wales
ID126	Buglife's view on the mitigation of impacts on the Shrill-carder bee
ID127	Support and objection arising from the consultation on alternatives

ID128	Rogiet Community Council response to ESS5
ID129	Newport City Council response to ESS5
ID130	NRW response to ESS5
ID131	South Wales local authorities who will support the scheme – map
ID132	Correspondence with Liberty Steel
ID133	Tracker of all objections updated to 27 September 2017 with updating
ID134	Undertaking with Liberty steel and withdrawal of objection
ID135	CADW Response to ESS5
ID136b	Media coverage of incidents and implications on M4 of 16 March 2018 (revised)
ID137	WG draft Budget 2018 – 19 proposals of October 2017
ID138	Tata counter objections to Alternatives 3 and 4
ID139	Various correspondence WG and objectors
ID140	Cargo Services withdrawal of objection
ID141	Consequences of the removal of tolls from the Severn Crossings
ID142	Publication of ESS6 of October 2017 Severn Toll removal
ID143	The Groundwater Regulations 1998
ID144	ESS Erratum
ID145	Withdrawal of objection from Royal Ordnance and Carlsberg
ID146	Non-technical summary of ESS No. 6 Welsh translation
ID147	Not used
ID148	Revised cultural heritage mitigation plan
ID150	SOCG between WG and Woodland Trust 8 November 2017
ID151a	meetings re the Beeches, Mr Phillips, Mr Colley and Mr L Williams (revised)
ID152	Not used
ID153	WG reply to NCCs response to ESS5

ID154	Dormouse statement of common ground (SOCG) - WG and NRW
ID155	Cultural Heritage, landscape and visual effects SOCG
ID156	Stephenson Street flood protection measures
ID157	SOCG not required for Internationally Designated Sites confirmation
ID158	Not used
ID159	WG reply to NRW response to ESS5
ID160	Modification 59 acceptance re objection O145
ID161	Letter to Marshalls Mono Ltd
ID162	Evidence re the effects of no tolls on the Crossings
ID162a	Evidence re the effects of no tolls on the Crossings (Phil Evans Evidence)
ID163	WG /NRW correspondence re O268
ID164	NRW response to ESS 6
ID165	Objection from Mr Alistair McDougall
ID166	Proposed demolition of Woodlands House-update
ID167	Correspondence from Western Power Distribution to the WG
ID168	Update on noise effects of the decision to remove tolls
ID169	Legal submission of Mr Richard Glover representing Marshalls Mono Ltd
ID170	Update on WG's traffic evidence from Mr Whittaker
ID171	Letter from Western Power Distribution to the Inspector
ID172	ABP update of their objection as of 20 December 2017
ID173	Additional Documents issued on 20/12/17 CD2.8.7 and CD2.8.8
ID174	Update on landowners' correspondence
ID175	Departures from Standards report CD 6.2.22
ID176	Newport City Councils motion re proposed scheme
ID177	Joint statement - Minister for Econ and Infra and F G Commissioner
ID178	New Documents introduced to the Inquiry:

CD6.1.28 (WeITAG),

CD5.2.11 (Future Generations Framework for projects) and

CD5.1.15 (Draft Welsh National Marine Plan)

ID179	New Documents 5.2.126.1.29, 6.1.30
ID180	Letter to Inspectors from Clyde and Company re ABP objection
ID181	Late Objection from Lisa Buchholz and Rebuttal of it
ID182	Minister/ CALM exchange of letters and rebuttal
ID182a	Minister/CALM exchange of letters and rebuttal with referral to Inquiry
ID182a+	ditto bilingual version
ID183	Docks second site visit attendees and specific locations
ID184	Costs, risk and optimism bias used in the scheme estimate
ID185	WG reply to NRW response to ESS 6
ID186	Ecosystem Services Assessment for the scheme
ID187	Bird protection and mitigation plan
ID187a	Updated Bird Protection and Mitigation Plan
ID188	Withdrawal of objection by Associated British Ports
ID189	Response to ESS 6 from Associated British Ports
ID190	Inspectors' visit to farms on 1/2/18, with Mrs Picton and Mrs Tindale
ID191	Update of landowner's correspondence from Mrs Julia Tindale
ID192	Response from NRW to ESS1
ID193	WG 1.9.1 Erratum to Mick Rawlings' proof of evidence
ID194	not used
ID195	Correspondence from Ms Jane Blank
ID196	Further correspondence from ABP
ID197	not used
ID198	WebTAG Data book update-implications

ID199	Qualifications of Mr Finlay representative of WG
ID200	Response to Friends of the Earth, Mr Gerald Kells
ID201	Island Steel Ltd-withdrawal of objection and support for scheme
ID202	Existing reclassification design standards
ID203	Revised circular on Compulsory Purchase Orders
ID204a	Woodland House update on potential relocation sites
ID205	Planning and sustainable development- evidence of John Davies
ID206	Origin - hazardous substances consent revised consultation zones
ID207	The Conservation of Habitats and Species Regulations 2017 (CD3.1.36)
ID208	New correspondence from Mr and Mrs Smith and Mr and Mrs Wynton
ID209a	Correspondence in response to Mr Waller
ID210b	Response to UK Cycling
ID211a	Rooftop nesting gulls in the Newport docks
ID212	Draft PPW Edition 10
ID213a	Correspondence with Mr Robert Hepworth
ID213a	Revision to correspondence with Mr Hepworth
ID214	Otter survey reports 2017
ID215	Interim wintering bird survey 2017 /2018 season
ID216a	Correspondence from Marshalls Mono Ltd ID216a New correspondence from Marshalls Mono Ltd
ID217	New correspondence from Gwent Wildlife Trust
ID218	Correspondence from GWT re-Professors Whitelegg and Jones
ID219	Correspondence from Gwent Wildlife Trust (GWT)
ID220	Fresh correspondence from James Byrne, note from Adam Dutton
ID221a	Revised wording of commitment 215

ID223	Reclassification of the M4-strategy design and risk
ID224	F G Commissioner evidence to the Parliamentary Committee of 1/3/18
ID225	List of Counsel who represented GWT
ID226	Ecosystem services queries
ID227	Origin UK Operations Ltd (H&S Executive)
ID228	Letter from the Secretary of State to the Inspectors 12/3/2018
ID228a	Letter to both Inspectors from Secretary of State for Transport
ID229	Letters from Western Power Distribution and Surf Telecommunications
ID230a	Mr Rhydian Lewis' Alternative 28 and WG rebuttal of it-updated
ID231	Woodland House – commitment
ID232	Hazardous Substances Consent approval for Origin UK (from NCC)
ID233	Correspondence with NRW about dormice
ID234	Media article about tolling of proposed M4
ID235	Withdrawal of objection from Newport Harbour Commissioners
ID236	Otter correspondence from NRW
ID237	Note of site visit by Inspector on 16 March 2018
ID238	The cranes of Lakenheath Fen
ID239	Modifications to the Orders, a narrowed junction cut width of 13.5 m
ID240	The Planning Inspectorate guide to Transport Orders 2012
ID241	Correspondence from Ms Lindi Rich representing GWT
ID242a	Modifications sought by WG
ID243	SRO and CPO modifications re Tata land re Crane roosts
ID244	NRW closing submission by Mr Richard Wald of Counsel
ID245	Correspondence from Robert Hepworth of CPRW
ID246	Withdrawal of objection of WE Dowds Shipping Ltd
ID247	Information from cross-examination of Mr Bussell by Mr Waller

- ID248 Traffic information table by Mr Whittaker on 7 March 2018
 - ID249 Closing statement of CPRW
 - ID250 WG response to RSPB submission of 20 March 2018
 - ID251 Statement of common ground on Internationally Designated Sites
 - ID252 Comments on WG rebuttals - from Professors Maltby and Morris
 - ID253 Comments on the WG rebuttal-from Professors Whitelegg and Jones
 - ID254 Letter regarding the closing submission of NRW
 - ID255 Closing submission of Mrs Ann Picton
 - ID256 Further correspondence from Ms Lindi Rich (of the GWT)
 - ID257 Updated 2017 otter survey report
 - ID258 Closing submission by the Campaign Against the Levels Motorway
 - ID259 Closing submission by Ms Morag Elliss QC and Mr Emyr Jones of Counsel on behalf of WG
 - ID260 Withdrawal of the Port Security Authority letter
 - ID261 Closing submission by Mr Brendon Moorhouse representing GWT, RSPB, CPRW, Friends of the Earth and Wildlife Trusts Wales.
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ANNEX D - MODIFICATIONS SOUGHT BY WG

SCHEDULE 1 – SCHEME ORDER MODIFICATIONS

Scheme Order Modification 1

The draft Scheme Order requires amending to remove the Glan Llyn and Docks Way Junction and Links from the Order. These will no longer be classed as Special Roads. They will be added into the Line Order and classed as Trunk Roads.

Within Schedule 2, part (2), remove 'A route about 444m in length, and new gyratory carriageway about 392m in length, from a point on site plan 4 marked C on the motorway to a point on site plan 4 marked D at the existing roundabout of the A4810 Queensway about 400m west of Llanwern Steelworks.'

Within Schedule 2, part (3), remove 'A route about 916m in length, and a new roundabout about 190m in length from a point on site plan 5 marked E on the A48 Southern Distributor Road 442m east of the Docks Way roundabout to a point on site plan 5 marked F about 487 metres east of the River Ebbw at Docks Way, Newport.'

Within Schedule 2, part (3), remove 'A route 187m in length, and a new gyratory carriageway about 332m in length from a point on site plan 5 marked F on the new motorway to a point on site plan 5 marked G on the new gyratory carriageway about 289m east of the River Ebbw at Docks Way, Newport.'

Scheme Order Modification 2

The draft Amendment (No. 2) Scheme Order requires modifying to increase the size of the Junction Cut from 11m to 13.5m.

Within Schedule 3, Article 3, remove Page 1 of 2 of the Schedule 3 (Amendment No. 2) drawings, and replace with the drawing titled Schedule 3 (Modification) Page 1 of 2

SCHEDULE 2 – LINE ORDER MODIFICATIONS

To the Line Order (Trunk Road)

The Line Order requires amending to add the Glan Llyn and Docks Way Junction and Links into the Order. They have been removed from the Scheme Order and therefore will no longer be classed as Special Roads.

Within Schedule 2, add 6. "A route about 444m in length, and new gyratory carriageway about 332m in length, from a point on site plan 5 marked O on the motorway to a point on site plan 5 marked P at the existing roundabout of the A4810 Queensway about 400m west of Llanwern Steelworks.'

Within Schedule 2, add 7. "A route about 1,147m in length, and a new gyratory carriageway about 332m in length from a point marked Q on the A48 Southern Distributor Road 442m east of the Docks Way roundabout to a point marked R on site plan 6 about 330m east of the River Ebbw at Docks Way, Newport.'

SCHEDULE 3 – SIDE ROADS ORDER MODIFICATIONS

To the Side Roads Order

Modification 1

On Schedule 2 of Site Plan 2, under Particulars of New Highways, add new length of footpath '2/E', the Highway Authority for which would be Newport City Council.

On Site Plan 2, Private Means of Access 2/7a has been re-aligned. Part of new public footpath 2/E to be co-existent with the new Private Means of Access 2/7a where it crosses that access. Substitute Extract from SRO MOD1 Plan into draft SRO Plans. There is no change to Schedule 2 of the draft Side Roads Order.

Modification 2

On Schedule 2 of Site Plan 2, under Particulars of New Highways, add new length of footpath '2/F' the Highway Authority for which would be Newport City Council.

On Schedule 2 of Site Plan 2, under Reference Number of New Private Means of Access, add 2/15a.

Modification 3

On Site Plan 8, Highway 8/D has been modified to become a mini-roundabout instead of the T-junction proposed in the draft Side Roads Order. Substitute Extract from SRO MOD3 Plan into draft SRO Plans. There is no change to Schedule 8 of the draft Side Roads Order.

On Site Plan 8, Highway 8/E has been re-aligned to tie in to the proposed mini-roundabout. Substitute Extract from SRO MOD3 Plan into draft SRO Plans. There is no change to Schedule 8 of the draft Side Roads Order.

On Site Plan 8, under Reference Number of New Private Means of Access, the location of PMA 8/2a has been relocated. Substitute Extract from SRO MOD3 Plan into draft SRO Plans. There is no change to Schedule 8 of the draft Side Roads Order.

On Schedule 8 of Site Plan 8, under Reference Number of New Private Means of Access, add 8/3a

Modification 4

On Site Plan 9, PMA 9/11a has been re-aligned. Substitute Extract from SRO MOD4 Plan into draft SRO Plans. There is no change to Schedule 9 of the draft Side Roads Order.

Modification 5

On Schedule 16 of Site Plan 16, under Highways to be Stopped Up, amend distances quoted for the stopping up of the highway known as Bencroft Lane.

On Site Plan 16, Highway 16/A has been re-aligned from the original alignment proposed in the draft Side Roads Order. Substitute Extract from SRO MOD5 Plan into draft SRO Plans. There is no change to Schedule 16 of the draft Side Roads Order.

On Site Plan 16, Private Means of Accesses 16/4a, 16/5a, 16/6a, 16/7a have been re-aligned to tie into the new alignment of Highway 16/A. Substitute Extract from SRO MOD5 Plan into draft SRO Plans. There is no change to Schedule 16 of the draft Side Roads Order.

On Schedule 16 of Site Plan 16, under Private Means of Access to be Stopped Up, add 'Vehicular access off the northern boundary of the B4245 to field within grid reference AA091, situated directly opposite the entrance to the property known as Green Farm, numbered '16/18' on the deposited plan.

On Schedule 16 of Site Plan 16, under Reference Number of New Private Means of Access, add 16/8a and 16/8b.

Modification 6

Modification Number Not Used

Modification 7

On Site Plan 5, Private Means of Access 5/11a has been re-aligned. Substitute Extract from SRO MOD7 Plan into draft SRO Plans. There is no change to Schedule 15 of the draft Side Roads Order.

On Schedule 5 of Site Plan 5, under Reference Number of New Private Means of Access, add 5/11b.

Modification 8

On Schedule 15 of Site Plan 15, under Private Means of Access to be Stopped Up, amend distance of Stopping up of 15/11.

On Site Plan 15, Private Means of Access 15/11a has been re-aligned. Substitute extract from SRO MOD8 Plan into draft SRO Plans. There is no change to Schedule 15 of the draft Side Roads Order.

On Site Plan 15, Restricted Byway 15/H has been re-aligned. Substitute extract from SRO MOD8 Plan into draft SRO Plans. There is no change to Schedule 15 of the draft Side Roads Order.

Modification 9

On Site Plan 15, Footpath 15/E has been re-aligned. Substitute extract from SRO MOD9 Plan into draft SRO Plans. There is no change to Schedule 15 of the draft Side Roads Order.

Modification 10

On Site Plan 4, Private Means of Access 4/3b has been re-aligned. Substitute extract from SRO MOD10 Plan into draft SRO Plans. There is no change to Schedule 4 of the draft Side Roads Order.

Modification 11

On Schedule 10 of Site Plan 10, under Reference Number of New Private Means of Access, add 10/7b.

Modification 12

On Schedule 15 of Site Plan 15, under Particulars of New Highway, for Highway 15/b remove 'bridleway' and replace with 'Footpath'.

Modification 13

On Schedule 7 of Site Plan 7, under Private Means of Access to be Stopped Up, remove 7/1.

On Schedule 7 of Site Plan 7, under Reference Number of New Private Means of Access, remove 7/1a.

Modification 14

On Schedule 5 of Site Plan 5, under Reference Number of New Private Means of Access, add 5/14a.

Modification 15

Modification Number Not Used

Modification 16

On Site Plan 14, Private Means of Access 14/C has been re-aligned. Substitute extract from SRO MOD16 Plan into draft SRO Plans. There is no change to Schedule 14 of the draft Side Roads Order.

Modification 17

On Site Plan 14, the alignments of Highways 14/E, 14/G and 14/H have been amended to accommodate a larger roundabout on Newport Road. This will accommodate the new Eastbound off-slip from the M4 Motorway at Magor. Substitute extract from SRO MOD17 Plan into draft SRO Plans. There is no change to Schedule 14 of the draft Side Roads Order.

On Schedule 14 of Site Plan 14, under Particulars of New Highways, for 14/F remove 'Footpath'.

On Site Plan 14, New Private Means of Access 14/8a has been re-aligned due to the changes at the proposed Newport Road Roundabout. Substitute extract from SRO MOD17 Plan into draft SRO Plans. There is no change to Schedule 14 of the draft Side Roads Order.

Modification 18

On Schedule 11 of Site Plan 11, under Reference Number of New Private Means of Access, add 11/2a.

SCHEDULE 4 – COMPULSORY PURCHASE ORDER MODIFICATIONS

To the Compulsory Purchase Order

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
1	Various Plots	n/a	Correction of drafting errors. CPO Schedule 1 Tables 1 and 2 to be amended.
2	N/A		MOD number not used.
3	16/8 16/8a	n/a	CPO Schedule 1 Tables 1 and 2 to be amended as follows: Plot 16/8 to be renamed 16/7s. Plot 16/8a to be renamed 16/7t.
4	N/A	n/a	MOD number not used
5	18/5, 18/5a, 18/5b, 18/5c, 18/5d, 18/5e, 18/5f	O152	CPO Schedule 1 Table 1 to be amended as follows: List Stephen Phillips,

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			Elder Cottage, Common-y-Coed, Magor, NP26 3AX as an Occupier in plots 18/5, 18/5a, 18/5b, 18/5c, 18/5d, 18/5e & 18/5f
6	1/8	0339	CPO Schedule 1, Table 1 to be amended as follows: Address of owner to be listed as UK Healthcare Property 1 LLP, 38 Seymour Street, London, W1H 7BP Address of Tenant to be listed as Barchester Healthcare Ltd, Suite 304, Third Floor, Design Centre East, Chelsea Harbour, London, SW10 0XF
7	2/18b, 2/18c, 2/18d, 2/18e, 2/18f & 2/18g	0003 0256 Objection withdrawn 0273 0330	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Include 'Ty'n y Brwyn, The Conifers, Longhouse Farm, Moorland View, No's 1,2,3,3a,4 and 5 Ty'n y Brwyn Farm' as having access rights over the Private Means of Access, and as being Other Qualifying Interests in the land (Column 6)
8		0257 Modification	CPO Schedule 1, Tables 1 & 2 to be

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	2/11, 2/11a, 2/11b, 2/11c, 2/12, 2/12a, 2/12b 2/13	accepted Objection withdrawn	amended as follows: Plot 2/11 – increase from 75m ² . to 116m ² Plot 2/11a - increase from 193m ² . to 392m ² Plot 2/11b - increase from 632m ² . to 871m ² Plot 2/11c - increase from 445m ² . to 483m ² Plots 2/12,12a, 12b - remove Plot 2/13 – reduce from 51m ² to 34m ² . Amend description to include 'ditch'.
9	23/2	n/a	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Address of owners to be listed as Mrs Beverly Laura Pope, 3 Yew Tree Close, Undy, Monmouthshire, NP26 3DQ and Susan Ivy Martin, Juniper House, Undy, Monmouthshire, NP26 3EL
10	11/2u, 11/2v, 11/2x	n/a	CPO Schedule 1, Table 2 to be amended as follows: Remove Civil & Marine's Interest as Other Qualifying

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			Persons (Column 6)
11	2/4, 2/4a	n/a	CPO Schedule 1, Table 1 to be amended as follows: Address of Michael Chetnik to be listed as 13 Salisbury Street, Newport, NP11 7PD
12	N/A	n/a	MOD number not used
13	15/5, 15/5a,15/5b, 15/5c, 15/5d, 15/5e, 15/5f, 15/5g	n/a	CPO Schedule 1, Table 1 to be amended as follows: Address to Mr Richard Bowkett to be listed as 648 Monnow Way, Bettws, Newport, NP20 7LN
14	5/3 sequence. 20/3	0145	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plots in 5/3 and 20/2 sequence - List National Westminster Bank, NatWest Mortgage Centre, PO Box 12201, 6 Brindley Place, Birmingham, B2 2AG as an additional qualifying interest (Column 5) Plot 20/3 - Include Mr Peter Watts Baker as additional owner / occupier
15	8/3, 8/3a	0305	CPO Schedule 1,

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Table 2 to be amended as follows:</p> <p>Address of Additional Qualifying Interest to be listed as Hanson Quarry Products Europe Ltd, Hanson House, 14 Castle Mill, Maidenhead, FL6 4JJ</p>
16	9/2c, 9/2e, 9/2f, 9/2g, 9/2j, 9/2t, 9/2v, 9/2bm	<p>O014 Modification accepted</p> <p>Objection maintained</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 9/2c: reduce from 6,073 m² to 5471m²</p> <p>Plot 9/2e: reduce from 6,539m² to 4862m² and description amended to include 'part of scrub land, woodland (contaminated land), pylon including overhead cable'</p> <p>Plot 9/2f: reduce from 131m² to 85m² and description amended to include 'of part of scrub land and woodland'</p> <p>Plot 9/2g: reduce from 90m² to 83m²</p> <p>Plot 9/2j: reduce from 431m² to 220m² and description amended to include 'of part of scrub land and woodland'</p> <p>Plot 9/2t: increase from 649m² to</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>780m²</p> <p>Plot 9/2v: reduce from 18884 sq. metres to 16,777m² and description amended to include 'part of scrub land, woodland, including overhead cable, ditches and track'</p> <p>Plot 9/2bm: reduce from 1,516m² to 577m² (Title) and description amended to include 'part of woodland and scrub land including track'</p> <p>Plot 9/2bn: New Plot 602m². Essential Licence for temporary access and working space.</p> <p>Plot 9/2bo: plot not used.</p> <p>Plot 9/2bp: New Plot. 18m² (Easement (S250 Right)) required to enter for all purposes connected with the construction and maintenance of a bridge structure.</p> <p>Plot 9/2bq: New Plot. 30m² (Easement (S250 Right)) required to enter for all purposes connected with the construction and maintenance of a</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>bridge structure.</p> <p>Plot 9/2br: New Plot. 233m² (Easement (S250 Right)) required to enter for all purposes connected with the construction and maintenance of a bridge structure.</p> <p>Plot 9/2bs: New Plot. 46m² (Title) required for the construction of bridge support.</p> <p>Plot 9/2bt: New Plot. 820m² (Title) required for the construction, maintenance and protection of a new bridge.</p> <p>Plot 9/2bu: New Plot. 1238m² (Easement (S250 Right)) required to enter for all purposes connected with the construction and maintenance of a bridge structure.</p> <p>Plot 9/2bv: New Plot. 53m² (Title) required for the construction of bridge support.</p> <p>Plot 9/2bw: New Plot. 158m² (Title) required for the construction of bridge support.</p> <p>Plot 9/2bx: New Plot. 165m² (Easement</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>(S250 Right)) required to enter for all purposes connected with the construction and maintenance of a bridge structure.</p> <p>Plot 9/2by: New Plot. 119m² (Title) required for the construction, maintenance and protection of a new bridge.</p> <p>Plot 9/2bz: New Plot. 1,976m² (Title) required for construction of new motorway and all associated works.</p> <p>Plot 9/2ca: New Plot. 943m² (Title) required for Private Means of Access</p>
17	<p>OBJ227</p> <p>2/2e, 2/2f,</p> <p>NO OBJ</p> <p>2/14b, 2/14c,</p> <p>OBJ230</p> <p>2/16e</p>	<p>Plots 2/14b & 2/14c – Modification accepted-no objection</p> <p>O230</p> <p>Modification accepted, objection maintained</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 2/2e: reduce from 62 to 11m²</p> <p>Plot 2/2f: reduce from 360 to 230m²</p> <p>Plot 2/2k: New plot. 130m². Dedication for new footpath and access.</p> <p>Plot 2/14b: reduce from 66 to 11m²</p> <p>Plot 2/16a: reduce from 16 to 9m²</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Plot 2/16e: reduce from 146m² to 135m²</p> <p>Plot 2/16h: increase from 3,073 to 3,083m²</p> <p>Plot 2/16j: new plot 11m². Dedication for new footpath and access.</p>
18	<p>2/5n,</p> <p>OBJ228</p> <p>2/18, 2/18b, 2/18c, 2/18f, 2/18g</p>	<p>O003</p> <p>O256</p> <p>Objection withdrawn</p> <p>O273</p> <p>O228</p> <p>O330</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 2/5n: reduce from 87 to 76m².</p> <p>Plot 2/5s: New plot. 11m².</p> <p>Plot 2/18: reduce from 97 to 96m².</p> <p>Plot 2/18b: description amended in column 2.</p> <p>Plot 2/18c: reduce from 1,205m² to 1,022m² and description amended in column 2.</p> <p>Plot 2/18f: reduce from 159 to 42m².</p> <p>Plot 2/18g: reduce from 21 to 20m² and description amended in column 2.</p> <p>Plot 2/18q: New plot. 189m² for access track.</p> <p>Plot 2/18r: New plot.</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>59m² for essential mitigation.</p> <p>Plot 2/18s: New plot. 51m² for construction of a new bridge structure.</p> <p>Plot 2/18t: New plot. 3m². for construction of a new bridge structure.</p>
19	<p>9/6, 9/6a,</p> <p>OBJ098 & OBJ306</p> <p>9/8, 9/8a, 9/8b,</p> <p>9/10, 9/10a</p>	<p>098</p> <p>0306</p> <p>Plot sequence 9/10 – Modification accepted objection withdrawn</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 9/6: reduces from 180 to 87m²</p> <p>Plot 9/6a: Plot not used</p> <p>Plot 9/6b: New Plot. 53m² required as Title for construction of highway.</p> <p>Plot 9/6c: New Plot. 16m² required as Title for construction of highway.</p> <p>Plot 9/8: reduce from 1,040 to 908m²</p> <p>Plot 9/8a: Plot not used.</p> <p>Plot 9/8b: reduce from 117 to 24 m²</p> <p>Plot 9/8c: New plot. 23m' required as Title for Private Means of Access</p> <p>Plot 9/10b: New Plot. 167m². Licence</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			required for the construction of a new access.
20	10/1ah, 10/1aj, 10/1ak, 10/1ap, 10/1as, 10/1au, 10/1az, 10/1ba, 10/1bd, 10/1bk, 10/1bn, 10/1dh, 10/1dj, 10/1dk	WG land at Tatton Farm Modification accepted	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plots 10/1ah, 10/1aj, 10/1ak, 10/1ap, 10/1as, 10/1au, 10/1av, 10/1az, 10/1ba, 10/1bd, 10/1bk, 10/1bn, 10/1dh, 10/1dj, 10/1dk not used
21	21/1a, 21/1b, 21/1c, 21/1d	WG land at Tatton Farm Modification accepted	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 21/1a: new plot 151,467m ² Plot 21/1b: new plot 33,788m ² Plot 21/1c: new plot 62,398m ² Plot 21/1d: new plot 1,947m ²
22	1/4, 1/4a, 1/4b, 1/4c, 1/4d, 1/4e, 1/4f, 1/4g, 1/4h, 1/4j, 1/4k	00322	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Address of Mark Williams to be listed as Mountain View, Victoria, Ebbw Vale, NP23 8AU
23	5/9, 5/9a, 5/9b, 5/9c, 5/9d, 5/9e, 5/9f, 5/9g, 5/9h, 5/9j, 5/9k	00212	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Mr Derek David removed from the

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			schedule as an Occupier
24	N/A	n/a	MOD number not used
25	8/4f, 8/12	n/a	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 8/4f: delete no longer required.</p> <p>Plot 8/12: delete, no longer required</p> <p>Plot 8/4p: new plot, 2,205m² (formerly part of 8/12) with Noel Fitzpatrick Ltd listed as leaseholder.</p> <p>Plot 8/4q: new plot, 3,976m² (formally part of 8/12) with ACE Portable Accommodation listed as leaseholder.</p>
26	23/7	OBJ0214	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Correct freeholder of the plot is Miss Susan Anstey, Court Farm, Rogiet, Caldicot, NP26 3UR</p>
27	1/3p, 2/2c, 2/2j	<p>OBJ0227</p> <p>Modification accepted</p> <p>Objection maintained</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 1/3p: reduction from 57,467 to 38,409m²</p> <p>Plot 2/2c: increase from 13,090 to</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			28,678m ² Plot 2/2j: reduce from 31,013 to 15,425m ²
28	15/26	OBJ0285	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Correct freeholder and occupier of the plot is Mr & Mrs Ward, North Row Farm, North Row, Redwick, Magor, NP26 3DX
29	3/2a, 3/2b, 3/2g	OBJ049 Objection maintained	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 3/2a: Plot not used. Plot 3/2b: reduce from 7,562 2,317m ² Plot 3/2g: increase from 456 to 583m ²
30	6/4d, 6/4y, 6/4bu & 6/4ca	OBJ216 Modification accepted Objection maintained	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 6/4d: reduce from 21,322 to 21,300m ² Plot 6/4y: reduce from 1,137 to 501m ² Plot 6/4bu: reduce from 981 to 630m ² Plot 6/4ca: increase from 422 to 494m ² Plot 6/4cf: New plot.

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>120m² required as Licence for a Private Means of Access</p> <p>Plot 6/4cg: New plot. 153m² - required as Essential Licence</p> <p>Plot 6/4ch: New plot. 149m² required as Essential Licence</p>
31	N/A	n/a	MOD number not used
32	N/A	n/a	MOD number not used
33	<p>No OBJ</p> <p>16/4ac, 16/4ae, 16/4ar, 16/4aw,</p> <p>OBJ238</p> <p>16/17a, 16/17b, 16/17c, 16/17d, 16/17n</p>	<p>OBJ238</p> <p>Modification accepted</p> <p>Objection maintained</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot16/4ac: reduce from 124 to 24m²</p> <p>Plots 16/4ae, 16/4ar not used.</p> <p>Plot16/4aw: increase from 46 to 58m²</p> <p>Plot16/17a: reduce from 106 sq. metres to 29m²</p> <p>Plot16/17b: reduce from 341 sq. metres to 292m²</p> <p>Plot16/17c: reduce from 4,205 m² to 38m²</p> <p>Plots 16/17d, 17n not used</p>
34	NO OBJ	OBJ229	CPO Schedule 1, Tables 1 & 2 to be
		Modification	

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	<p>16/1,</p> <p>OBJ229</p> <p>16/6c, 16/6d, 16/6h,</p>	<p>accepted objection maintained but</p>	<p>amended as follows:</p> <p>Plot 16/1: reduce from 910 to 903m²</p> <p>Plot 16/1x: New Plot. 6m². Dedication required for new Bridleway to be co-existent with public highway.</p> <p>Plot 16/1y: New plot. 105m² as title for re-alignment of St. Brides Road.</p> <p>Plot 16/1z: New Plot. 7m². Dedication required for new Bridleway to be co-existent with public highway.</p> <p>Plot 16/1aa: New Plot. 163m². Title required for the re-alignment of St. Brides Road.</p> <p>Plot 16/6c: reduce from 3,956 to 3,285m²</p> <p>Plot 16/6d: reduce from 308 to 172m²</p> <p>Plot 16/6h: reduce from 192 to 130m²</p> <p>Plot 16/6j: new plot, 808m². Title required for the construction of a water treatment area.</p> <p>Plot 16/6k: new plot, 8m². Dedication required for a new</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			bridleway. Plot 16/6m: new plot, 55m ² . Title required for the realignment of St. Brides Road.
35-42	N/A	n/a	MOD numbers not used
43	1/5c, 1/5d	n/a	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 1/5c: Remove Qualifying Interest (Column 6) Plot 1/5d: Remove Qualifying Interest (Column 6)
44	18/10	n/a	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Residual Lands Limited, 23a Gold Tops, Newport, NP20 4UL to be listed as Other qualifying person (Column 6)
45	N/A	n/a	MOD number not used
46	10/5	O218	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 10/5: reduces from 5,092 to 5005m ²
47	6/9f, 6/9n, 6/9ba	O217	CPO Schedule 1, Tables 1 & 2 to be

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
		Modification accepted objection withdrawn	<p>amended as follows:</p> <p>Plot 6/4cj: New Plot. 410m² required as Essential Licence.</p> <p>Plot 6/9f: reduce from 100 to 25m²</p> <p>Plot 6/9n: reduce from 29 to 12m²</p> <p>Plot 6/9ba: reduction from 1,347 to 297m²</p> <p>Plot 6/9bb: New Plot. 54m² required as S250 Rights (Easement)</p> <p>Plot 6/9bc: New Plot. 21m² required as S250 Rights (Easement)</p> <p>Plot 6/9bd: New Plot. 9m² required as S250 Rights (Easement)</p> <p>Plot 6/9be: New Plot. 8m² required as S250 Rights (Easement)</p> <p>Plot 6/9bf: New Plot. 191m² required as Essential Licence</p> <p>Plot 6/9bg: New Plot. 449m² required as Essential Licence</p> <p>Plot 6/10g: New Plot. 240m² required as Licence (Private Means of Access) and S250 Rights (Easement)</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
48	22/2	OBJ0215 Objection maintained	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Correct freeholder and occupier of the plot is Mr David Colley, Great House, Undy, Magor, Newport, NP26 3EN
49	11/2aj, 11/2aq, 11/2at, 11/2bt, 11/2bv	11/2am, 11/2ar, 11/2ay, 11/2bu,	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 11/2aj: reduce from 80,313 to 80,021m ² . Plot 11/2am: reduce from 838 to 610m ² Plot 11/2aq: reduce from 3,961 to 676m. Leaseholder and Occupier to be listed as Malcolm Lawer, Cambrian Stone Limited, Portland House, Bickenhill Lane, Solihull, Birmingham, B37 7BQ Plot 11/2ar: reduce from 764 to 371m ² . Leaseholder and Occupier to be listed as Malcolm Lawer, Cambrian Stone Limited, Portland House, Bickenhill Lane, Solihull, Birmingham, B37 7BQ Plot 11/2at: reduce from 2,197 m ² to

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>1,523m².</p> <p>Plot 11/2ay: reduce from 18,930m² to 18,901m².</p> <p>Plot 11/2bt: increase from 486 m² to 488 m²</p> <p>Plot 11/2bu: reduced from 269 sq. metres to 132 sq. metres. Leaseholder and Occupier to be listed as Malcolm Lawer, Cambrian Stone Limited, Portland House, Bickenhill Lane, Solihull, Birmingham, B37 7BQ</p> <p>Plot 11/2bv: increase from 332 m² to 435m²</p> <p>Plot 11/2cb: New plot. 56m² required as</p> <p>Plot 11/2cc: New plot. 24m² required as S250 Rights (Easement) and Essential Licence</p>
50	10/1q, 10/1cx	<p>0068</p> <p>Modification accepted objection withdrawn</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 10/1q: reduced from 14,044m² to 12,758m²</p> <p>Plot 10/1cx: reduced</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>from 241 to 54m²</p> <p>Plot 10/1dx. New Plot. 1,590m² required as S250 Rights (Easement)</p> <p>Plot 10/1dy: New Plot. 108m² required as Essential Licence.</p>
51	5/1a, 5/1b, 5/1c, 5/1h, 5/1n, 5/1p, 5/1q	<p>0019</p> <p>Modification accepted objection withdrawn</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 5/1a: reduced from 82 to 72 m²</p> <p>Plot 5/1b: reduced from 76 to 67m²</p> <p>Plot 5/1c: increase from 7,514 to 7,533m²</p> <p>Plot 5/1h: reduce from 58 to 17m²</p> <p>Plot 5/1n: New Plot. 32m² required as Title (Private Means of Access)</p> <p>Plot 5/1p: New plot. 6m² required as Title</p> <p>Plot 5/1q: New plot. 3m² required as Title.</p>
52	11/2by, 11/2ca, 11/2bz,	S138	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 11/2by: New Plot. 585m² required as Essential Licence</p> <p>Plot 11/2bz: New</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Plot. 788 m² required as Licence (Private Means of Access)</p> <p>Plot 11/2ca: New Plot. 839m² required as Essential Licence</p>
53	18/3, 18/3a, 18/3c, 18/3d, 18/3e, 18/3h, 18/3j	<p>O152</p> <p>Objection maintained</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 18/3: reduce from 24,982m², to 18,289m²</p> <p>Plot 18/3a: increase from 246 to 253m²</p> <p>Plot 18/3c: increase from 6 to 7m²</p> <p>Plot 18/3d: reduce from 7,286 to 5,600m²</p> <p>Plot 18/3e: increase from 319 to 320m²</p> <p>Plot 18/3h: increase from 251 to 284m²</p> <p>Plot 18/3j: reduce from 128 to 92m²</p> <p>Plot 18/3q: New plot. 10,147 m² required as Title</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
54	5/5,5/5b, 5/5c, 5/5f, 5/5g, 5/5j, 5/5m, 5/5q, 5/5u, 5/5v, 5/5w	OBJ0025 Objection converted to support S206	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 5/5: reduce from 18,381 to 18,212 m²</p> <p>Plot 5/5b: reduce from 784 to 733m²</p> <p>Plot 5/5c: reduce from 859 to 792m²</p> <p>Plots 5/5f, 5g not used.</p> <p>Plot 5/5j: reduce from 5,141m² to 4320m²</p> <p>Plot 5/5m: reduce from 1,238 to 1,120m²</p> <p>Plots 5/5q, 5u, 5v, 5w: Plot not used</p> <p>Plot 5/8c: New plot. 963m² required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>(Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8d: New plot. 173 m² required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8e: New plot. 170m² required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8f: New plot. 177m² required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8g: New plot. 13m² required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8h: New plot. 51m² required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8j: New plot. 211m² required as S250 Rights (Easement).</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8k: New plot. 145 sq. metres required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p> <p>Plot 5/8m: New plot. 117 sq. metres required as Title. Owners and Occupiers to be listed as Network Rail Infrastructure Limited, c/o Stephen Sprei (Surveyor), 1 Eversholt Street, London, NW1 2DN</p>
55	<p>OBJ214</p> <p>18/6a, 18/6c, 18/7f, 18/7g, 18/7h,</p>	<p>OBJ0214 Objection maintained</p>	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	18/7j, 18/7k		Plots 18/6a, 18/6c, 18/7f, 18/7g, 18/7h, 18/7j, and 18/7k not used
56	2/21	n/a	CPO Schedule 1, Table 2 to be amended as follows: Plot 2/21: Remove David Vicary and Peter Gilks as Other Qualifying Interests
57	16/1j, 16/13c, OBJ103 16/16a	OBJ0103 Objection withdrawn	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 16/1j: reduce from 72,586 to 69,690m ² Plot 16/13c: reduce from 226 to 172m ² Plot16/16a: Plot not used
58	1/14b, 1/18, 1/18a	n/a	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 1/14b: reduce to 7 m ² Plot 1/18: reduce from 540 to 529m ² Plot 1/18a: reduce from

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			108 to 65m ² . Plot required as S250 Rights (Easement)
59	5/3g, 5/3aa, 5/3ak, 5/3aq, 5/3bd	OBJ0145 (Maerdy Farm) objection maintained	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 5/3g: Increase from 7,886 to 10,746m ² Plots 5/3aa, 5/3ak, 5/3aq, and 5/3bd required as Title
60	N/A	OBJ0047	MOD number not used
61	8/7r, 8/9h, 8/14	OBJ0025 Objection converted to support S206	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 8/7r: reduce from 6,498 to 6,356m ² Plot 8/9h: reduce from 476 to 255m ² Plot 8/14: Plot not used
62	N/A	O289	MOD number

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			not used
63	N/A	S182	MOD number not used
64	22/5, 23/2, 23/3, 23/4, 23/4a, 23/5, 23/6, 23/7	n/a	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plots 22/5, 23/2, 23/3, 23/4, 23/4a, 23/5, 23/6 and 23/7 not used
65	8/4e	OBJ0305 objection maintained	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 8/4e: reduce from 1,704 to 1,087m ²
66	N/A	n/a	MOD number not used
67	Supplementary CPO Plots 1/3, 1.3a	O213 & O214 Objection maintained	CPO Schedule 1, Tables 1 & 2 to be amended as follows: Plot 1/3: reduce from 138 to 24m ² Plot 1/3a: New plot. 47m ² required as S250 Rights (Easement)
68	15/10a,	O025	CPO

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	15/10b	Objection converted to support, S206	<p>Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plots 15/10a and 15/10b not used</p> <p>Plot 15/2bm: Replaces plot 15/10a. 88m² required as Essential Licence. Owner and Occupier to be listed as Monmouthshire County Council Estates Department, PO BOX 106, Caldicot, NP26 9AN</p> <p>Plot 15/2bk: Replaces plot 15/10b. 244 m² required as Essential Licence. Owner and Occupier to be listed as Monmouthshire County Council Estates Department, PO BOX 106, Caldicot, NP26 9AN</p>
69-72	N/A		MOD numbers not

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			used
73	7/2, 7/2q, 7/2r, 7/2s, 7/2t, 7/2u, 7/2v, 7/2w, 7/3j, 7/3k, 7/3m, 7/3m, 7/3n, 7/3p, 7/3q, 7/3r, 7/3s, 7/3t, 7/3u, 7/3v, 7/3w, 7/3x, 7/3y, 7/3z, 7/3aa, 7/3ab, 7/3ac, 7/3ad, 7/3ae, 7/3af, 7/3ag, 7/3ah, 7/3aj, 7/3ak, 7/3am, 7/3an, 7/3ap, 7/3aq, 7/3ar, 7/3as, 7/3at, 7/3au, 7/3av, 7/3aw, 7/3ax, 7/3ay, 7/3az, 7/3ba, 7/3bc, 7/3bd, 7/3be, 7/3bf, 7/3bg, 7/3bh, 7/3bj, 7/3bk, 7/3bm, 7/3bn, 7/3bp, 7/3bq, 7/3br, 7/3bs, 7/3bt, 7/3bu, 7/3bv, 7/3bw, 7/3bx, 7/3by, 7/3bz, 7/3ca, 7/3cb, 7/3cc, 7/3cd, 7/3ce, 7/3cf, 7/3cg, 7/3ch, 7/3cj, 7/3ck, 7/3cm, 7/3cp, 7/3cq, 7/3cr, 7/3cs, 7/3ct, 7/3cu, 7/3cv, 7/3cw, 7/3cx, 7/3cy, 7/3cz, 7/3da,	0031 (Modification of Supplementary CPO NO. 3)	CPO Schedule 1, Tables 1 & 2 to be amended as follows: All plots listed in column 2 to be listed as 'Plot not used'.

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	7/3db, 7/3dc, 7/3dd, 7/3de, 7/3dg, 7/3dj, 7/3dk, 7/3dm, 7/3dn, 7/3dp, 7/3dq, 7/4		
74	15/1c, 15/1d, 15/1e, 15/1f, 15/1g, 15/1h, 15/1j, 15/1k, 15/1m, 15/1n, 15/1p, 15/1q, 15/1t, 15/1u, 15/1v, 15/1w, 15/2ae, 15/2af, 15/2ag, 15/2aj, 15/2am, 15/2an, 15/2ap, 15/2ar, 15/2as, 15/2at, 15/2au, 15/2aw, 15/2ax, 15/11d, 15/16f, 15/20, 15/20a, 15/20b, 15/20c, 15/20d, 15/20e, 15/22a, 15/22b, 15/22c 15/1x, 15/1y, 15/1ad, 15/2aq, 15/2az, 15/2ba,	Various (Modification of Supplementary CPO NO. 2)	CPO Schedule 1, Tables 1 & 2 to be amended as follows: The following plots to be listed in column 2 as 'Plot not used'. 15/1c, 15/1d, 15/1e, 15/1f, 15/1g, 15/1h, 15/1j, 15/1k, 15/1m, 15/1n, 15/1p, 15/1q, 15/1t, 15/1u, 15/1v, 15/1w, 15/2ae, 15/2af, 15/2ag, 15/2aj, 15/2am, 15/2an, 15/2ap, 15/2ar, 15/2as, 15/2at, 15/2au, 15/2aw, 15/2ax, 15/11d, 15/16f, 15/20, 15/20a, 15/20b, 15/20c, 15/20d, 15/20e, 15/22a, 15/22b,

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	15/2bb, 15/9m, 15/9n, 15/11, 15/11a, 15/11e, 15/12, 15/12a, 15/21a, 15/21c, 15/21d		15/22c Plot 15/1s: Reduce to 7492 m ² . Amend description to include "and overbridge structure" Plot 15/1x: Reduce to 21 m ² Plot 15/1y: Reduce to 8515 m ² Plot 15/1ad: Reduce to 2213 m ² Plot 15/2aq: reduce to 153 m ² Plot 15/2az: Reduce to 3 m ² Plot 15/2ba: Reduce to 1273 m ² Plot 15/2bb: reduce to 601 m ² Plot 15/9m: Reduce to 1637 m ² Plot 15/9n: Reduce to 19643 m ² Plot 15/11: Reduce to

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>5903 m²</p> <p>Plot 15/11a: Reduce to 5186 m²</p> <p>Plot 15/11e: Reduce to 4519 m²</p> <p>Plot 15/12: Reduce to 1548 m²</p> <p>Plot 15/12a: Reduce to 431 m²</p> <p>Plot 15/21a: Reduce to 4501 m²</p> <p>Plot 15/21c: Reduce to 71 m²</p> <p>Plot 15/21d: Part of existing plot 15/21a (title mitigation) now required as Title to build the new side road. 188m² of part of pastureland located north of the main South Wales to London Railway Line and north west of the junction of the B4245 and Blenheim Avenue.</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Plot 8/7s: Plot required as title. 8m² of part of storage compound and ditch located east of Newport Docks and south east of Stephenson Street Industrial Estate.</p> <p>Plot 8/8: Reduce to 262m²</p> <p>Plot 8/11: Reduce to 6 m²</p> <p>Plot 8/11a: Reduce to 77m².</p> <p>Under section 250 of the Highways Act 1980. The right to enter and re-enter upon 87m² of part of storage yard located east of Newport Docks and south east of Stephenson Street Industrial Estate for all purposes connected with the construction and maintenance of a bridge</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>structure. In the ownership of Bird Group of Companies.</p> <p>Plot 8:15a: Plot required as title. 273m² of part of storage yard located east of Newport Docks and south east of Stephenson Street Industrial Estate. In the ownership of Bird Group of Companies.</p> <p>Plot 8/15b: Plot required as title. 348m² of part of storage yard located east of Newport Docks and south east of Stephenson Street Industrial Estate. In the ownership of Bird Group of Companies.</p> <p>Plot 8/15c: Plot required as title. 772m² of part of storage yard located east of Newport Docks and south east of Stephenson Street Industrial Estate. In the ownership of Bird</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			Group of Companies.
76	<p>8/6s, 8/6t, 8/6w</p> <p>8/8h, 8/8j, 8/8k,</p> <p>8/9b, 8/9c, 8/9d, 8/9e, 8/9f, 8/9g, 8/9h, 8/9j,</p> <p>8/13</p>	0308	<p>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</p> <p>Plot 8/6s: Reduce to 1,239m²</p> <p>Plot 8/6t: Plot not used</p> <p>Plot 8/6w: Reduce to 1,483m²</p> <p>Plot 8/8h: Plot not used</p> <p>Plot 8/8j: Reduce plot to 108m²</p> <p>Plot 8/8k: Reduce to 926m²</p> <p>Plot 8/9: Reduce to 150m²</p> <p>Plot 8/9a: Reduce to 1,253m²</p> <p>Plot 8/9b: Reduce to 529m²</p> <p>Plot 8/9c: Reduce to 7,011m²</p> <p>Plot 8/9d: Reduce to 8,634m²</p> <p>Plot 8/9e: Plot not used</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Plot 8/9f: Reduce to 1,609m²</p> <p>Plot 8/9g: Reduce to 14017m²</p> <p>Plot 8/9h: Reduce to 255m²</p> <p>Plot 8/9j: Plot required as Easement under Section 250 of the Highways Act, 1980. The right to enter and re-enter upon 2,695 m² of part of access road, storage compound and car parking area including overhead cable located east of Newport Docks and south east of Stephenson Street Industrial Estate for all purposes connected with the construction and maintenance of an attenuation pond and mitigation area.</p>
77 Revision A	Supplementary No. 3 CPO Plots 1/2cc, 1/2ce, 1/2dh, 1/2dg, 1/2gs, 1/2ks, 1/2kw, 1/2kx, 1/2ky, 1/2kz, 1/2ma,	O031 (Modification of Supplementary CPO NO. 4)	CPO Schedule 1, Tables 1 & 2 amend as follows: Plot 1/2cc: Reduce to 3,557 m ²

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	1/2mb, 1/2mc, 1/2mg, 1/2mh, 1/2mp, 1/2mz, 1/2na, 1/2nb, 1/2nc, 1/2nh, 1/2nj, 1/2nk		Plot 1/2ce: Reduce to 1,131m ² Plot 1/2dg: Reduce to 1,033 m ² Plot 1/2dh: Reduce to 2,541m ² Plot 1/2gs: Reduce to 346m ² Plot 1/2ks: Plot not used Plot 1/2kw: Reduce to 794m ² Plot 1/2kx: Reduce to 2,215m ² Plot 1/2ky, 1/2kz and 1/2ma not used Plot 1/2mb: Reduce to 115m ² Plot 1/2mc: Reduce to 4,868m ² Plot 1/2mg: Reduce to 885m ² Plots 1/2mh, 1/2mp, 1/2mz, 1/2na, 1/2nb, 1/2nc, 1/2nh, 1/2nj, and 1/2nk not used
78	1/1b, 1/1c, 1/5e, 1/14b1 1/16c, 1/17,	n/a	CPO Schedule 1, Tables 1 & 2 to be amended

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
	1/17a, 1/18b		<p>as follows:</p> <p>Plot 1/1b: Previously plot 1/17a. Owners and occupiers now the Welsh GovernmentWG, Cathays Park, Cardiff, CF10 3NQ</p> <p>Plot 1/1c: Previously plot 1/17. Owners and occupiers now the Welsh GovernmentWG, Cathays Park, Cardiff, CF10 3NQ</p> <p>Plot 1/5e: New plot. 659 m² of part of A48 (M) slip road, embankment, track and part of public footpath 399/29 located north east of Bryn Ivor Lodge Care Home and north of the A48. Owner and Occupier to be listed as Stephen Brinley Richards, 19 Tynwydd Drive, Castleton, Cardiff CF3 8SB</p> <p>Plot 1/14b: Plot not used</p> <p>Plot 1/16c: Reduce to 659m². Owners to be listed as Wyevale Garden</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>Centres Ltd, The Garden Centre Group, Syon Park, Brentford, Middlesex, TW8 8JF.</p> <p>Leaseholders and Occupiers to be listed as Castleton Grow Your Own Association, 3 Allen Close, Old St Mellons, Cardiff, CF3 5DH</p> <p>Plot 1/17, 17a: Plots not used</p> <p>Plot 1/18b: Reduce area to 659m².</p>
Red79	<p>12/2q, 12/2s, 12/2bb, 12/2bc, 12//2bd, 13/2a, 13/2d, 13/2e, 13/2g, 13/2h, 13/2m, 13/2v,</p>	<p>SUP0138 (Tata) (Accepted)</p>	<p><u>CPO Schedule 1, Tables 1 & 2 to be amended as follows:</u></p> <p>Plot 12/2q: Reduce to 1,540m²</p> <p>Plot 12/2s: Plot not used</p> <p>Plot 12/2bb: Plot required as 3,941m² of part of woodland, ditch, scrubland, track, and SSSI (Gwent Levels) located east of National Grid sub-station and south of Llanwern Steelworks.</p> <p>12/2bc: Plot required-32m² of part of</p>

Modification Number	Plot(s)	OBJ Number (if applicable) (O)	Description of Modification
			<p>woodland, ditch, scrubland, track, and SSSI (Gwent Levels) located east of National Grid sub-station and south of Llanwern Steelworks.</p> <p>12/2bd: Plot required- 120,050m² of part of woodland, ditch, scrubland, track, and SSSI (Gwent Levels) located east of National Grid sub-station and south of Llanwern Steelworks.</p> <p>Plot 13/2a: Plot not used</p> <p>Plot 13/2d: Plot not used</p> <p>Plot 13/2e: Increase to 222,088 m²</p> <p>Plot 13/2g, 2h, 2m Plots not used</p> <p>Plot 13/2v: Reduce to 2,614m²</p>

Annex E –Withdrawn or Duplicated Objections

Individual objections

The following individual objections had been formally withdrawn by the close of the Inquiry. These are:

ABP (O31), W E Dowds (O302), Port Security Authority (O95), Newport Harbour Commissioners (O71), Vodafone Ltd (O90), Carlsberg Supply Co UK Ltd (O98), Bovis Homes Ltd (O103), National Grid (O205), Dŵr Cymru (O321), Royal Ordnance (O306), BT (O6897), Liberty Steel Ltd (O308), Network Rail (O25), LDH Plant Ltd (O47), Caerphilly CBC (O73), National Grid (O205), Tarmac and Cambrian Stone Ltd (O97), Barbara Willis (O101), DHB Accountants Ltd (O120), Ruth Dow (O124), Cargo Services Ltd (O137), Ian Cummings (O157), WT German (O218), Griffiths/ Howells (O221), CW Jones (O226), Keith and Jane Siberthorpe (O256), Mr and Mrs Clatworthy (O257), Barbara Hancock (O274), Hanson (O274), Cardiff CBC (O283), Air Products Ltd (O289), Ashtenne Ltd & Ashtenne Industrial Fund (O301), Residual Lands Ltd (O304), CADW (O341), Island Steel.

ID076b (revised) dated 27/03/18 contains a list of all withdrawn objections.

Objections from the campaigns

By the end of the Inquiry, the following 672 objectors, earlier associated with, or registered with the campaigns against the scheme, had either withdrawn or had been shown to have been double-counted in the campaign lists submitted by those objectors in response to the publication of the draft Schemes and Orders earlier:

3 of the Wildlife Trust campaigners - Objectors referenced O/- 36, 38, 542.

435 of the RSPB campaigners - Objectors referenced O/- 816, 902, 918, 751, 763, 766, 854, 867, 891, 895, 902, 918, 928, 934, 944, 969, 995, 997, 1029, 1034, 1090, 1100, 1132, 1144, 1151, 1181, 1200, 1326, 1334, 1402, 1418, 1444, 1459, 1485, 1506, 1531, 1576, 1624, 1733, 1767, 1788, 1811, 1818, 1820, 1822, 1879, 1881, 1912, 1931, 1950, 1997, 2011, 2012, 2013, 2031, 2060, 2061, 2069, 2080, 2092, 2102, 2116, 2119, 2136, 2156, 2157, 2185, 2190, 2194, 2210, 2221, 2232, 2263, 2263, 2268, 2274, 2277, 2283, 2288, 2294, 2296, 2323, 2328, 2333, 2335, 2336, 2338, 2364, 2383, 2425, 2434, 2435, 2452, 2479, 2493, 2499, 2521, 2523, 2529, 2532, 2547, 2550, 2552, 2569, 2581, 2625, 2628, 2649, 2658, 2660, 2673, 2674, 2678, 2690, 2612, 2704, 2709, 2720, 2722, 2732, 2747, 2749, 2764, 2778, 2789, 2805, 2811, 2825, 2845, 2847, 2855, 2878, 2880, 2890, 2891, 2802, 2909, 2962, 2963, 2967, 2971, 2989, 2995, 3000, 3001, 3014, 3020, 3024, 3029, 3039, 3065, 3080, 3091, 3118, 3122, 3129, 3134, 3136, 3139, 3148, 3149, 3152, 3155, 3193, 3294, 3216, 3221, 3226, 3229, 3231, 3234, 3236, 3244, 3255, 3269, 3296, 3311, 3313, 3325, 3332, 3335, 3357, 3365, 3385, 3387, 3392, 3397, 3400, 3408, 3418, 3448, 3455, 3456, 3457, 3474, 3477, 3491, 3497, 3551, 3513, 3526, 3543, 3555, 3557, 3577, 3581, 3585, 3595, 3609, 3611, 3629, 3634, 3644, 3668, 3711, 3717, 3721, 3726, 3727, 3727, 3750, 3776, 3780, 3790, 3808, 3819, 3826, 3832, 3837, 3838, 3845, 3849,

3855, 3867, 3888, 3919, 3930, 3935, 3963, 3966, 3992, 4017, 4019, 4028, 4036, 4037, 4047, 4053, 4062, 4064, 4079, 4080, 4125, 4170, 4180, 4202, 4203, 4210, 4214, 4222, 4234, 4250, 4265, 4285, 4291, 4323, 4356, 4360, 4367, 4373, 4423, 4424, 4439, 4446, 4447, 4457, 4457, 4463, 4488, 4502, 4509, 4518, 4519, 4538, 4541, 4573, 4579, 4584, 4587, 4590, 4612, 4615, 4620, 4622, 4628, 4644, 4662, 4669, 4686, 4690, 4700, 4705, 4722, 4727, 4763, 4766, 4770, 4779, 4782, 4787, 4793, 4806, 4807, 4818, 4831, 4833, 4843, 4847, 4866, 4874, 4879, 4904, 4916, 4918, 4927, 4932, 4957, 4058, 4967, 4984, 4986, 5005, 4014, 5061, 5066, 5072, 5074, 5075, 5083, 5086, 5001, 5129, 5150, 5152, 5153, 5166, 5177, 5203, 5205, 5211, 5245, 5250, 5251, 5262, 5264, 5264, 5266, 5285, 5299, 5312, 5318, 5319, 5338, 5341, 5349, 5356, 5365, 5402, 5416, 5437, 5457, 5485, 5487, 5507, 5512, 5555, 5566, 5573, 5595, 5649, 5658, 5665, 5682, 5692, 5719, 5724, 5728, 5734, 5748, 5749, 5750, 5752, 758, 5760, 5784, 5789, 5789, 5803, 5812, 5813, 5815, 5829, 5842, 5879, 5885, 5895, 5896, 5942, 5945, 4956, 5966, 5976, 5995, 5998, 6004, 6010, 6118, 6119, 6019, 6021, 6028, 6044, 6048, 6050, 6059, 6065, 6069, 6094, 6097, 6109, 6118, 6129, 6130, 6131, 6297.

3 of the Woodland Trust campaigners - Objectors referenced O/- 6703, 6714 and 6754.

189 of the Gwent Wildlife Trust campaigners – Objectors referenced O/-

343, 380, 382, 384, 391, 408, 422, 456, 458, 464, 465, 472, 501, 511, 512, 515, 517, 523, 524, 525, 527, 528, 535, 537, 538, 544, 550, 551, 557, 558, 560, 561, 562, 563, 569, 573, 577, 578, 583, 588, 589, 590, 591, 597, 599, 602, 603, 604, 610, 611, 615, 619, 624, 625, 627, 630, 633, 634, 641, 642, 646, 652, 659, 660, 663, 664, 673, 675, 676, 677, 679, 680, 681, 683, 685, 686, 689, 690, 692, 696, 704, 705, 708, 710, 711, 712, 715, 719, 720, 721, 722, 727, 731, 733, then

6135, 6148, 6153, 6156, 6179, 6180, 6181, 6186, 6223, 6224, 6235, 6242, 6247, 6257, 6265, 6269, 6287, 6291, 6297, 6300, 6301, 6392, 6322, 6330, 6359, 6371, 6387, 6388, 6393, 6398, 6399, 6406, 6411, 6412, 6115, 6424, 6428, 6445, 6446, 6462, 6467, 6471, 6476, 6479, 6483, 6490, 6492, 6495, 6499, 6500, 6501, 6513, 6519, 6523, 6528, 6548, 6573, 6588, 6589, 6596, 6598, 6613, 6617, 6624, 6626, 6649, 6650, 6669, 6672, 6674, 6687, 6701, 6703, 6714, 6717, 6720, 6754, 6756, 6761, 6764, 6766, 6779, 6802, 6803, 6810, 6818, 6825, 6839, 6846, 6855, 6857, 6868, 6873, 6875, 6883.