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M4 Corridor around Newport

Sustainable Development Report



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Executive Summary

The Well-being of Future Generations Act 2015 places a duty on public bodies in Wales to carry out sustainable development. The sustainable development report considers how the proposed M4 Corridor around Newport (M4CaN) (referred to as the Scheme) aligns to the Welsh Government's principles of sustainable development, in the context of the well-being goals (illustrated in figure 1 below) defined in this Act.

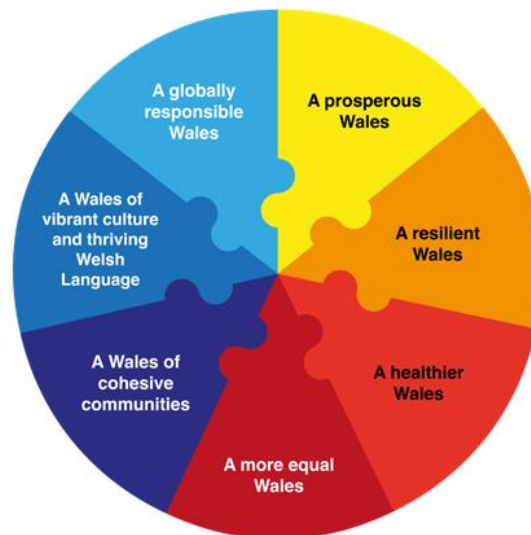


Figure 1 – Well-being Goals of the Well-being of Future Generations Act 2015 (source: Welsh Government, 2015)

In considering the principles of sustainable development and the well-being goals, this report summarises the wide range of opportunities and benefits of the Scheme having regard to the potential impacts and proposed mitigation.

The report demonstrates that the Scheme would generate opportunities to improve the economic prosperity of the region, as well as to help create a healthier and more cohesive community.

Relevant assessments have been undertaken to understand the environmental effects of the Scheme, identifying impacts on important ecological resources, the loss of heritage assets and impacts arising from the proposed land take of the new section of motorway. These have been minimised where feasible, with appropriate mitigation and enhancement strategies proposed to offset the impacts.

The proposed construction methodology would use resources efficiently and would provide employment opportunities, including commitments to employ local workers. The estimated carbon emissions from the construction of the Scheme are a small fraction of the total emissions. The use of the proposed new section of motorway would result in a marginal reduction of user carbon emissions when compared to without the Scheme.

In conclusion, whilst acknowledging the potential impacts of the Scheme, these are balanced with opportunities which align with the well-being goals, as far as they are currently developed, and therefore the Scheme is considered to align with the Welsh Government's principles of sustainable development.

1 Introduction

1.1 Purpose of Report

- 1.1.1** This report considers how the proposed M4 Corridor around Newport (M4CaN) aligns to the Welsh Government's principles of sustainable development, in the context of the well-being goals of the Well-being of Future Generations Act 2015, which places a duty on public bodies in Wales to carry out sustainable development.
- 1.1.2** This report has been prepared as an appendix to the Environmental Statement, published alongside the draft Statutory Orders.

1.2 The Scheme

- 1.2.1** M4CaN (referred to as the Scheme) is the Welsh Government's proposed solution to address the problems on the M4 motorway around Newport. The Welsh Government published 'The Plan' for the M4 Corridor around Newport on 16th July 2014 (Welsh Government, 2014a). Subsequently, the Scheme has been further developed in preparation for the publication of draft Statutory Orders, an Environmental Statement and other supporting documents.
- 1.2.2** The Scheme is a new section of three-lane motorway between Castleton and Magor to the south of Newport in South Wales, along with a range of Complementary Measures. These include reclassification of the existing M4 as a trunk road between Castleton and Magor, relief to Junction 23A with a new M4/M48/B4245 connection and provision of cycle and walking friendly infrastructure.
- 1.2.3** A detailed description of the Scheme is provided in Chapter 2 of the Environmental Statement, with a description of the proposed approach to construction provided in Chapter 3.

1.3 Scope of Report

- 1.3.1** The scope of this report is to consider the sustainability of the design, construction and future operation of the Scheme. This report also summarises the strategic decision making process previously undertaken to identify the Scheme as the preferred option to address transport related problems on the existing M4. This report presents how the Scheme has continued to be developed since the adoption of the Plan, how it would be constructed, and would be operated and maintained, aligning to the principles of sustainable development.

2 Welsh Sustainable Development Policies and Objectives

2.1 Background to Welsh Sustainable Development Policy

2.1.1 The Welsh Government adopted its first sustainable development scheme, “Learning to Live Differently” in 2000 (National Assembly for Wales, 2000).

2.1.2 Subsequently, the Government of Wales Act 2006 set a legal duty on Welsh ministers to “*make a scheme (“the sustainable development scheme”) setting out how they propose to promote sustainable development*”. This was published as “One Wales: One Planet - The Sustainable Development Scheme of the Welsh Assembly Government” (Welsh Assembly Government, 2009), which set out the Government’s vision of a sustainable Wales and confirmed sustainable development as the central organising principle of the Welsh Assembly Government (now referred to as the Welsh Government).

2.1.3 In “One Wales: One Planet”, sustainable development is defined as “*enhancing the economic, social and environmental well-being of people and communities, achieving a better quality of life for our own and future generations*”, and the “*Vision of a Sustainable Wales*” is “*one where Wales:-*

- lives within its environmental limits, using only its fair share of the earth’s resources so that our ecological footprint is reduced to the global average availability of resources, and we are resilient to the impacts of climate change;
- has healthy, biologically diverse and productive ecosystems that are managed sustainably;
- has a resilient and sustainable economy that is able to develop whilst stabilising, then reducing, its use of natural resources and reducing its contribution to climate change;
- has communities which are safe, sustainable and attractive places for people to live and work, where people have access to services, and enjoy good health;
- is a fair, just and bilingual nation, in which citizens of all ages and backgrounds are empowered to determine their own lives, shape their communities and achieve their full potential”.

2.1.4 As stated in “A Sustainable Wales, Better Choices for a Better Future – Consultation on proposals for a Sustainable Development Bill” (Welsh Government, 2012) “*whilst there has been clear progress in embedding sustainable development since devolution [through the delivery of the principles set out in “One Wales, One Planet”], the independent effectiveness reviews, international best practice and learning and development since devolution highlight that improvements can be made*”. The Well-Being of Future Generations Act 2015, details of which are explained below, has been introduced to strengthen the sustainable development framework in Wales, alongside the Planning (Wales) Act 2015 (which aims to “improve the existing planning process to ensure the right development is located in the right place”, and the

Environment (Wales) Bill, which aims to put “in place a modern statutory process to plan and manage [Wales] natural resources in a joined and sustainable way” (Welsh Government, 2015).

2.2 Well-Being of Future Generations (Wales) Act 2015

2.2.1 In order to strengthen the sustainable development framework in Wales, a pilot National Conversation was launched in February 2014, to define the ‘Wales We Want’, led by a Commissioner for Sustainable Futures. The “Wales We Want” Report (Welsh Government and Sustain Wales, 2015), set out the seven foundations for the wellbeing of future generations. This resulted in the enactment of the Well-Being of Future Generations (Wales) Act 2015, in May 2015, which requires “*public bodies to do things in pursuit of the economic, social, environmental and cultural well-being of Wales in a way that accords with the sustainable development principle*”.

2.2.2 The 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*”, and defines seven ‘well-being’ goals, as set out in Table 2.1 below.

Table 2.1: Well-Being Goals of the Well-Being of Future Generations Act 2015

Goal	Description of the goal
A prosperous Wales	An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops 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
A resilient Wales	A nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).
A healthier Wales	A society in which people’s physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood
A more equal Wales	A society that enables people to fulfil their potential no matter what their background or circumstances (including their socio economic background and circumstances).
A Wales of cohesive communities	Attractive, viable, safe and well-connected communities
A Wales of vibrant culture and thriving Welsh language	A society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts and sports and recreation.

Goal	Description of the goal
A globally responsible Wales	A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being.

2.2.3 The Well-Being of Future Generations Act 2015 requires public bodies in Wales to work towards achieving these well-being goals, in order for actions to align to the Welsh Government's principles of sustainable development. Following the next National Assembly for Wales election, each public body is required under the Act to publish a set of well-being objectives "*designed to maximise their contribution to achieving each of the well being goals*". The well-being goals will form the framework of these objectives, as well as indicators to be used to measure well-being, which the Welsh Government recently consulted on ("How do you measure a nation's progress?" (Welsh Government, 2015b)).

2.2.4 The structure of this report is therefore based on the framework of the Well-Being of Future Generations Act, i.e. the Well-Being Goals, demonstrating how the aims and objectives of the Scheme align with these goals, and how the Scheme would align to the principles of sustainable development as defined by these goals.

3 Strategic Decision Making

3.1 Introduction

3.1.1 The identification, appraisal, sifting and selection of potential alternatives has been wide ranging up to the Welsh Government's decision to adopt its preferred strategy, as published in its 'M4 Corridor Around Newport – The Plan' (Welsh Government, 2014a) (referred to as 'The Plan').

3.1.2 This chapter summarises the strategic decision making process undertaken to identify 'The Plan' as the preferred strategy, identifying the sustainability focused appraisals undertaken to inform the Welsh Minister's decision to adopt its Plan and progress the Scheme. Further detail on the identification, appraisal and selection of options, and consideration of alternatives, is provided in Chapter 4 of the Environmental Statement.

3.2 Existing Situation

3.2.1 The M4 in South Wales forms part of the Trans-European Transport Network (TEN-T), and plays a key strategic role in connecting South Wales with the rest of Europe. It is a key east-west route, being the main gateway into South Wales and one of the most heavily used roads in Wales. The M4 is critical to the Welsh economy as it facilitates the transport of goods, links people to jobs and employment sites and serves the Welsh tourism industry.

3.2.2 The existing M4 between Junctions 28 and 24 was originally designed as the 'Newport Bypass' with further design amendments in the 1960s to include the first motorway tunnels to be built in the UK. This stretch of the existing M4 does not meet modern motorway design standards and has many lane drops and lane gains, resulting in some two lane sections, an intermittent hard shoulder and frequent junctions. It is often congested, especially during weekday peak periods, resulting in slow and unreliable journey times and stop-start conditions with incidents frequently causing delays.

3.2.3 Existing problems relate to capacity, resilience, safety and sustainable development. Traffic forecasts show that existing problems are predicted to worsen in future. Some of the problems related to sustainable development, as set out in the 'M4 Corridor around Newport - WelTAG Stage 1 (Strategy Level) Appraisal Report (Welsh Government, 2013a), include:

"There is a lack of adequate sustainable integrated transport alternatives for existing road users.

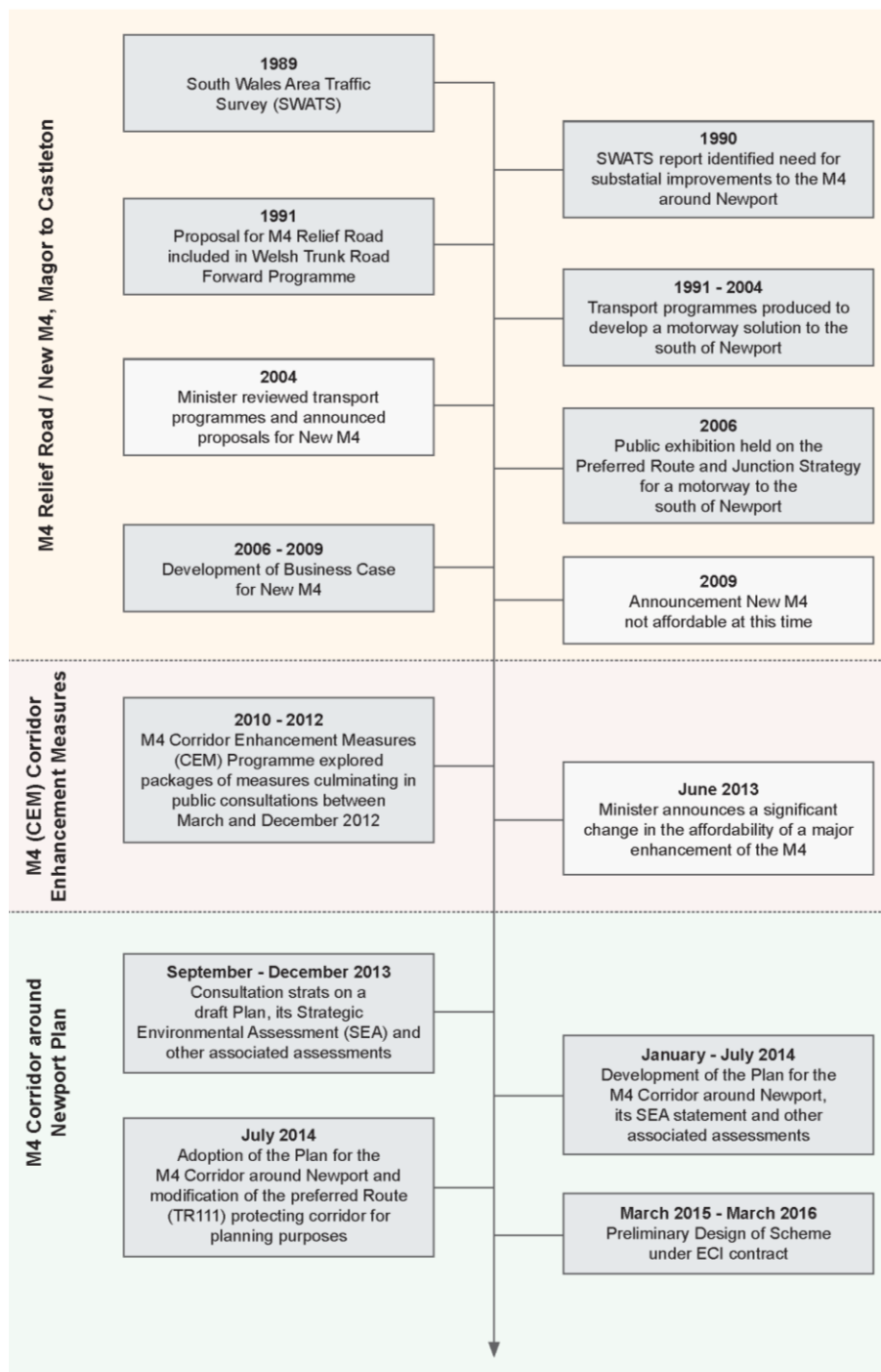
Traffic noise from the motorway and air quality is a problem for local residents in certain areas.

The existing transport network acts as a constraint to economic growth and adversely impacts the current economy."

3.3 Overview of Decision Making Process

3.3.1 Since the early 1990s, assessment and consultation has been undertaken to develop a preferred solution to the problems on the motorway around Newport. Figure 3.1 below sets out the key stages in decision making and the key milestones in the development of 'The Plan' (as described in Chapter 4 of the Environmental Statement).

Figure 3.1 Decision Making Timeline



- 3.3.2** To address the transport related problems of the M4 around Newport, the Welsh Government identified the following Transport Planning Objectives. No weighting of any TPOs were identified.

Transport Planning Objectives
1. Safer, easier and more reliable travel east-west in South Wales.
2. Improved transport connections within Wales and to England, the Republic of Ireland and the rest of Europe on all modes on the international transport network.
3. More effective and integrated use of alternatives to the M4, including other parts of the transport network and other modes of transport for local and strategic journeys around Newport.
4. Best possible use of the existing M4, local road network and other transport networks.
5. More reliable journey times along the M4 Corridor.
6. Increased level of choice for all people making journeys within the transport Corridor by all modes between Magor and Castleton, commensurate with demand for alternatives.
7. Improved safety on the M4 Corridor between Magor and Castleton.
8. Improved air quality in areas next to the M4 around Newport.
9. Reduced disturbance to people from high noise levels, from all transport modes and traffic within the M4 Corridor.
10. Reduced greenhouse gas emissions per vehicle and/or person kilometre.
11. Improved travel experience into South Wales along the M4 Corridor.
12. An M4 attractive for strategic journeys that discourages local traffic use.
13. Improved traffic management in and around Newport on the M4 Corridor.
14. Easier access to local key services and residential and commercial centres.
15. A cultural shift in travel behaviour towards more sustainable choices.

- 3.3.3** In addition, the Welsh Government identified the following environmental objectives, based on the National Transport Plan SEA Objectives (Welsh Government, 2014c) but adapted to provide a more local focus.

Environmental Objectives
1. Improved air quality in areas next to the existing M4 around Newport.
2a Reduce greenhouse gas emissions per vehicle and/or person kilometre.
2b. Ensure that effective adaptation measures to climate change are in place.
3. Reduce disturbance to people from high noise levels, from all transport modes and traffic within the existing M4 Corridor.
4. Ensure that biodiversity is protected, valued and enhanced.
5. Improved access to all services and facilities and reduce severance.
6. Protect and promote everyone's physical and mental wellbeing and safety.
7. Reduce transport related contamination and safeguard soil function, quality and quantity.
8. Minimise transport related effects on surface and groundwater quality, flood plains and areas of flood risk
9. Ensure the prudent and sustainable use of natural resources and energy
10. Ensure that diversity, local distinctiveness and cultural heritage are valued, protected, celebrated and enhanced
11. Ensure that landscape and townscape is properly valued, conserved and enhanced.

3.4 Sustainability Appraisals during Decision Making Process

3.4.1 The Welsh Government uses the 'Welsh Transport Planning and Appraisal Guidance' (WelTAG) (Welsh Assembly Government, 2008) for the assessment of new transport planning proposals. This appraisal methodology requires assessment of potential options against identified transport planning objectives, in addition to the 'Welsh Impact Areas' criteria of the economy, the environment and society. As stated in the WelTag guidance, *"these high-level. Strategic Welsh Impact Areas correspond to the three pillars of sustainable development. The Welsh Government has a statutory duty under the Government of Wales Act to promote sustainable development and is, therefore committed to making decisions which are consistent with this aim"*. Therefore, the WelTAG appraisals undertaken to inform the development of 'The Plan' and then the Scheme, form an appraisal against sustainability criteria, in line with the Welsh Government's Sustainable Development Scheme.

3.4.2 The 'M4 Corridor around Newport - WelTAG Stage 1 (Strategy Level) Appraisal Report' (Welsh Government, 2013a), presented the findings of appraisal that led to the decision making on The Plan, along with the findings of an economic assessment, Health Impact Assessment (HIA), Equality Impact Assessment (EqIA) and Strategic Environment Assessment (SEA). The requirements of the Welsh Sustainable Development Scheme and the Draft Future Generations (Wales) Bill 2013/14 were reviewed as part of the review of relevant policies, plans and programmes in the SEA, to identify the environmental objectives that are of relevance to the draft Plan (Welsh Government, 2013b).

3.4.3 The WelTAG Stage 1 report presented a comparative performance of the transport options and concluded that:

"subject to adequate funding, the following strategic options are worthy of consideration in terms of schemes that might be brought forward for inclusion in the draft Plan:

- New section of 3-lane motorway between Magor and Castleton to the south of Newport along the line of the Black Route; and
- Complementary Measures.

It is assumed that public transport enhancements will be separately progressed by a delivery taskforce set by the Welsh Government in liaison with other interested parties".

3.4.4 Following this, further alternatives were suggested during consultation, and these were also appraised using WelTAG principles. The results were presented in the 'M4 Corridor around Newport - Strategic Appraisal of Alternatives Considered During Consultation' report (Welsh Government, 2014b), which concluded:

"The alternatives, as considered in this document, are not considered to be reasonable alternatives in line with the SEA requirements. Therefore no additional alternatives are recommended to be taken forward for further appraisal".

3.5 Adoption of ‘The Plan’

3.5.1 Taking into account the results of a public consultation and relevant assessments, the Welsh Government published “M4 Corridor around Newport – The Plan” in July 2014, which included the following.

- A new section of motorway being built between Junctions 23 and 29 south of Newport.
- Complementary Measures, to include the following.
 - a. Reclassifying the existing M4 between Magor and Castleton.
 - b. An M4/M48/B4245 connection.
 - c. Providing cycle friendly infrastructure.
 - d. Providing walking friendly infrastructure.

3.5.2 The aims of the Welsh Government, as outlined in The Plan, are as follows:-

- 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, across Wales, and enabling access to international markets.
- To produce positive effects overall on people and the environment, making a positive contribution to the overarching Welsh Government goals to reduce greenhouse gas emissions and to making Wales more resilient to the effects of climate change.

3.6 Modification of the Preferred Route (TR111)

3.6.1 Following the Plan’s proposal for the new section of motorway to the south of Newport, the Welsh Government modified its 2006 Preferred Route, which protects a corridor for planning purposes. The modified 2014 Preferred Route (TR111) largely follows the 2006 Preferred Route, taking into account the decision, as part of the Plan, to reclassify the existing M4 between Magor (Junction 23a) and Castleton (Junction 29) as a trunk road.

3.6.2 Building on the strategic level appraisal undertaken to support the Welsh Government’s decision making on its Plan for the M4 Corridor around Newport, the documents below were published to inform the development of its Preferred Route:

- Business Case (Welsh Government, 2014d);
- WelTAG Stage 1 & 2 (scheme level) Appraisal Report (Welsh Government, 2014e);
- Design Manual for Roads and Bridges Stage 2 Report (Welsh Government, 2014f);
- Design Manual for Roads and Bridges Stage 2 Environmental Report (Welsh Government, 2014g);
- Economic Appraisal Report (Welsh Government 2014h);

- Local Model Validation Report (Welsh Government, 2014i); and
- Traffic Forecasting Report (Welsh Government, 2014j).

4 Summary of Key Sustainability Measures

4.1 Introduction

4.1.1 Since the publication of The Plan in July 2014, the Well-Being of Future Generations (WBFG) Act 2015 has been enacted, which, as explained in chapter 2 of this report, requires “*public bodies to do things in pursuit of the economic, social, environmental and cultural well-being of Wales in a way that accords with the sustainable development principle*”.

4.1.2 To demonstrate how the Scheme aligns with the Well-Being Goals of the WBFG Act 2015, the following sections explore how the Scheme has been developed and would be constructed to meet these objectives following the principles defined by the Well-Being goals.

4.2 A Prosperous Wales

4.2.1 The first Well-Being Goal is “*A Prosperous Wales - an innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately (including acting on climate change); and which develops 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*”.

4.2.2 This goal encapsulates a number of aspects of sustainability, which have been divided in the sections below.

“Innovative, productive and low carbon society”

4.2.3 The Scheme has been developed to provide a more efficient transport network for the region, across Wales, and internationally. An Economic Assessment Report (Welsh Government, 2016a) has been prepared in support of the Scheme and sets out the likely transport user benefits as a result of the Scheme compared to it not being delivered. It confirms that the Scheme would provide greater benefits than its costs, providing good value for money.

4.2.4 A Wider Economic Impact Assessment (Welsh Government, 2016b) has also been prepared and forms part of the evidence informing the draft Statutory Orders. This confirms that the transport benefits of the Scheme (lower journey times, improved reliability and enhanced network resilience) would together result in reduced transport costs to businesses, improving the productivity of businesses in the area. The Wider Economic Impact Assessment report presents estimated direct cost savings for businesses in the study area to be £40m each year by the design year of 2037, with a further £39m estimated from the productivity benefits of improved accessibility although there are reliability and resilience benefits that cannot be quantified but should be taken into account.

4.2.5 In terms of innovation, the ongoing evolution of the Scheme design has incorporated innovative methods to help achieve the overall aims and objectives. Details of the design development are described Chapter 4 of the Environmental Statement. For example, the options appraisal carried out for the proposed route

considered options for a junction within the Newport Docks area and alternative alignments to cross the River Usk, aiming to provide accessibility and economic benefits, whilst protecting the protected ecology of the River Usk Special Area of Conservation. The key design iterations considered since the publication of The Plan, as described in Chapter 4, have incorporated a variety of innovative methods with consideration given to a range of engineering and environmental factors.

4.2.6 The carbon footprint of the Scheme, including emissions associated with its construction, operation and use, is presented in the Carbon Report, appended to Chapter 2 of the Environmental Statement, and discussed further in the section on using resources efficiently and proportionately below.

4.2.7 The links provided in the Scheme to encourage the use of alternative modes of transport together support the principles of a low carbon society (one aspect of the Prosperous Wales well-being goal) through:

- the improved accessibility around Magor, including to the Severn Tunnel Junction railway station;
- the Glan Llyn junction providing access to the proposed Glan Llyn development including potential new Llanwern railway station / park and ride site; and
- creation of a new cycleway along a section of the new motorway, providing a link between the nationally promoted cycle route, NR4, and Magor.

4.2.8 In addition, low carbon measures have been introduced in the operation of the motorway, including the use of LED lighting and Intelligent Transport Systems (ITS).

“Recognising the limits of the global environment, using resources efficiently and proportionately (including acting on climate change)”

4.2.9 The Scheme has been developed to minimise or offset potential effects on the environment and provide enhancement opportunities where feasible and appropriate. The Environmental Masterplans (EMPs) presented in Chapter 2 of the Environmental Statement illustrate the proposed design features to protect and enhance the environment.

4.2.10 The topic chapters of the Environmental Statement set out the potential impacts on people and the environment and measures to minimise these effects, and consider where opportunities arise to have a positive or beneficial effect. Further consideration to minimising the impact on the environment is considered below under the section on ‘A Resilient Wales’.

4.2.11 In terms of resource efficiency, as part of the Scheme design evolution opportunities have been considered and included where feasible to minimise the use of materials, reuse existing materials and design out waste, through reductions in footprint of the new section of motorway, reductions in structure height and use of composite construction. For example, one of the main changes to the conceptual design is at the Castleton Interchange, which has reduced the number of major structures from six to four and facilitates a better cut and fill balance overall with other parts of the Scheme.

4.2.12 The Buildability Report (Appendix 3.1 of the Environmental Statement) sets out the earthworks strategy for the Scheme. The principles are to deliver the following as far as possible.

- Achieve a materials balance between cut and fill (i.e. the material excavated and the material placed) and minimising the generation of material that has to be disposed off-site.
- Import the minimum amount of earthworks material from offsite by maximising the use of site-won material, including the reuse of contaminated soils provided they are suitable for use.
- Avoid the need to remove topsoil or break the upper soil layer across the Gwent Levels; reducing the volume of unsuitable material generated.
- Avoid double handling material and aim to deliver the material from where it is excavated to where it is to be placed in a single operation, eliminating the need for temporary stockpiling of material (other than topsoil, unsuitable material and hard material stockpiles) and minimising the number and distance of dump truck movements for the transport of materials on site.
- Where practicable, process excavated material on-site at source (using crushing / screening, stabilisation and modification) for incorporation within the works.
- Use temporary stockpiles of topsoil and early permanent earthworks to provide barriers between the works and sensitive receptors where practical.
- Provide edge protection and appropriate Health and Safety precautions around excavations at the end of each working period with physical barriers where required.
- Minimise the number and distance of vehicle movements on public roads for the transport of materials.
- Minimise disruption to stakeholders and the travelling public.

4.2.13 By reusing as much of the site won materials as possible, this would minimise both the amount of material that would otherwise be transported for disposal and minimise the amount of imported primary raw materials, thereby preserving mineral resources. This would be delivered through the Construction Environmental Management Plan (CEMP). A Pre-CEMP is provided at Appendix 3.2 of the Environmental Statement.

4.2.14 During construction, a detailed soil handling methodology would be produced which would identify best practice methods for the stripping, storage and replacement of soils, to minimise the impact on soil as a resource.

4.2.15 As well as overall resource use, specific consideration has been given to the carbon emissions associated with the Scheme. The carbon footprint of the Scheme, including emissions associated with its construction, operation and use, is presented in the Carbon Report, appended to Chapter 2 of the Environmental Statement. As part of the design evolution, consideration has been given where feasible to the reduction of the carbon emissions associated with the construction of the Scheme (referred to as the capital carbon), which would continue during the next stages of design through a systematic review of material specification. However, as explained in the Carbon Report, the carbon emissions from the construction of the Scheme are a small fraction of the total emissions. The

assessment of carbon emissions indicates that the Scheme would result in a marginal reduction of user carbon emissions when compared to without the Scheme, even though the number of vehicle trips would increase.

“Developing a skilled and well-educated population”

4.2.16 The Scheme is being developed to improve accessibility and reliability of journey times. The accessibility modelling results presented in the Wider Economic Assessment demonstrate improved accessibility in and to South Wales, including improving access to key areas of employment and education centres, and the widening of the effective pool of labour available to businesses.

4.2.17 The construction phase of Scheme would provide employment opportunities in the construction sector and local commercial opportunities. It is estimated that over the course of the construction period a total of 3,112 construction worker years would be required to deliver the project, equating to around 700 people employed on the scheme every month over the duration of the construction period. The Welsh Government is committed to ensuring as many construction jobs as possible would be filled by local workers, depending on the availability of suitably skilled local people. The Welsh Government is committed to achieving 20% of the total labour costs from employment of new entrant trainees who have an apprenticeship, trainee or employment contract with the contractor or a subcontractor, and are engaged in a training programme.

“An economy which generates wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work”

4.2.18 The provision of a new section of motorway to the south of Newport is a major infrastructure investment aiming to stimulate economic growth and regeneration in South Wales. The Scheme, by creating two new junctions to the south of Newport, would provide improved access to a number of currently allocated employment sites. The Wider Economic Impact Assessment estimates that these sites have the capacity to cater for in the region of 15,000 jobs.

4.2.19 This investment would support the aspirations of the City Region plan for Cardiff, Newport and Bristol, which sets out that investment in the region must focus on improving connectivity, realising the potential of the Severn Estuary and Bristol Channel and promoting the region as a high quality destination for international business.

4.2.20 The new section of motorway would see the construction of two new junctions to the south of Newport serving major development areas such as the Glan Llyn development on disused parts of the Llanwern Steelworks, as well as important existing employment sites at west Newport for example. The proposed junction would also significantly improve access to Newport Docks and associated potential development areas, especially for HGVs. The construction of the River Usk Crossing would require the purchase of operational land at the Port, which has the potential to impact the operations at Newport Docks. Global Maritime Consultancy Ltd has undertaken an assessment of vessel activity and prepared a shipping analysis to aid the understanding of the potential impacts. This report has concluded that the impacts are likely to be slight and therefore the implications on the wider economy would be limited, and would need to be

considered alongside the potential benefits that would be brought about by the provision of a junction at Docks Way.

- 4.2.21** Benefits to the local economy would occur during the construction period as well, both through the employment opportunities as discussed above, and the benefits of spend in the local economy from construction workers. The project team has also expressed a commitment to local procurement policies where possible and appropriate, with opportunities considered on a case by case basis.

4.3 A Resilient Wales

- 4.3.1** The second Well-Being Goal is “*A Resilient Wales - a nation which maintains and enhances a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change)*”.

- 4.3.2** This goal encapsulates a number of aspects of sustainability which have been split out in the sections below.

“Maintains and enhances a biodiverse natural environment”

- 4.3.3** The Scheme has been developed to minimise the effects of the environment and provide enhancement opportunities where feasible. The proposed new section of motorway would pass through European and nationally designated sites and other habitats that support protected and notable species. The Environmental Masterplans (EMPs) presented in Chapter 2 of the Environmental Statement illustrate the proposed design features to protect and enhance the environment. The landscape/habitat provision includes planting of 83.1 hectares of woodland, 19.8 hectares of linear belts of trees and shrubs, 26.1 hectares of species rich grassland, 9.86 hectares of reedbeds and 3.60 km of hedgerows and hedgerows with trees.

- 4.3.4** The new section of motorway would cross the Gwent Levels SSSIs. With regard to these, there is a requirement under Section 28G of the Wildlife and Countryside Act (1981, as amended) for the Welsh Ministers 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*’. As explained in the Ecology and Nature Conservation chapter of the Environmental Statement, measures have thus been taken not only to avoid, reduce and remediate the potential ecological effects of the Scheme (many of which are an integral part of the Scheme design), but also to ensure that the interest features of the SSSIs are conserved and enhanced. From an early stage of design development, avoidance principles have been followed to ensure that there would be no construction within the wetted channels of the Rivers Usk and Ebbw, and to minimise the land take within the Gwent Levels SSSIs and, where practical, avoid land take to the south of the line of the new section of motorway. Measures to conserve and enhance the interest features of the SSSI over the long term (and specifically to offset the land take) are included in the SSSI Mitigation Strategy.

- 4.3.5** Measures taken to reduce adverse effects, explained in full in the Ecology and Nature Conservation chapter, include the provision of water treatment areas to control the volume and quality of water discharged to the reen system and

maintenance of all existing reen connections across the line of the new road. Specific measures are also proposed to protect identified species, as well as measures to avoid the use of lighting and minimise light spill through good lighting design.

4.3.6 Further measures are also proposed to offset potential adverse effects on the ecological resources, including replacement of reens and field ditches at a ratio of a little over 1:1, replacement of saltmarsh, the provision of badger setts and a bat barn, and the ecological enhancement of land at Maerdy Farm, Tatton Farm and Caldicot Moor, proposed as part of the draft SSSI Mitigation Strategy (Appendix 10.35 of the Environmental Statement).

4.3.7 The aim of this draft SSSI Mitigation Strategy is to provide mitigation for the loss of coastal grazing marsh habitat as a result of the Scheme and, where practicable, to ecologically enhance the Gwent Levels SSIs. The final details of this strategy would be agreed in advance with Natural Resources Wales (NRW).

“Healthy functioning ecosystems that support social, economic and ecological resilience”

4.3.8 One of the three overarching aims of The Plan is *“to produce positive effects overall on people and the environment, making a positive contribution to the overarching Welsh Government goals to reduce greenhouse gas emissions and to making Wales more resilient to the effects of climate change”*. During the evolution of the design and the overall development of the Scheme, this aim has been at the forefront of decision making.

4.3.9 The proposed ecological mitigation and enhancement measures have been developed to minimise the impact on the existing ecosystems within and in proximity to the Scheme. The replacement of the reen network at a ratio of a little over 1:1, along with the measures set out in the draft SSSI Mitigation Strategy, in the Cultural Heritage Mitigation Plan (Appendix 8.10 of the Environmental Statement), minimising impacts on farm holdings, and maintaining connectivity of the public footpath network have together been proposed to ensure that the Gwent Levels can continue to deliver the wide range of social, economic and environmental benefits that it currently does.

“The capacity to adapt to change (for example climate change)”

4.3.10 The Scheme has been developed to ensure that it is resilient to future changes in the climate, particularly in relation to future risks of flooding.

4.4 A Healthier Wales

4.4.1 The third Well-Being Goal is *“A Healthier Wales - a society in which people’s physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood”*.

4.4.2 This goal encapsulates a number of aspects of sustainability which have been split out in the sections below.

“People’s physical and mental well-being is maximised”

- 4.4.3** The Scheme has been developed with the objectives to *“improve air quality in areas next to the M4 around Newport”*; and *“reduce the disturbance to people from high noise levels, from all transport modes and traffic within the M4 Corridor”*.
- 4.4.4** A Health Impact Assessment has been undertaken to assess the potential health effects of the Scheme, including effects on people’s physical and mental well-being (Appendix 5.4 of the Environmental Statement). This report demonstrates that, overall, there would be a net benefit due to the reduction in noise and air quality exposure, although recognising that this benefit is not uniform across the whole area affected by the Scheme. For example, the assessment of road traffic air pollution impacts during the operational phase of the scheme concludes that the scheme is predicted to improve air quality in urban areas alongside the existing M4 corridor, and while it would have a negative effect on air quality around the new alignment and connecting roads, this is not predicted to cause any exceedances of air quality objectives.
- 4.4.5** In the short term, it is recognised that there may be some disruption during construction that may have an effect on people’s physical and mental well-being. However this disruption would be minimised through the control measures (including dust management and traffic management) as set out in the Pre-CEMP.
- 4.4.6** As described below in the section considering how the scheme encourages people to participate in the arts, and sports and recreation, the provision of new cycling and walking routes proposed as part of the scheme would help provide opportunities for improvements in people’s physical and mental well-being.

“Choices and behaviours that benefit future health”

- 4.4.7** There are potential positive and negative impacts on people’s lives and property that need to be considered. The transport benefits of the Scheme, i.e. lower journey times, improved reliability and enhanced network resilience, are predicted to lead to greater opportunities for personal choice in the future, in terms of access to employment and recreational opportunities as well as greater opportunity for personal time and improved work-life balance.

4.5 A More Equal Wales

- 4.5.1** The fourth Well-Being Goal is *“A More Equal Wales - a society that enables people to fulfil their potential no matter what their background or circumstances (including their socio economic background and circumstances)”*.

“A society that enables people to fulfil their potential no matter what their background or circumstances”

- 4.5.2** A preliminary Equality Impact Assessment (EqIA) was undertaken during the development of The Plan (as reported in the Weltag Stage 1 report, Welsh Government 2013a). This has been updated in preparation of the publication of the draft Orders and is presented in the Health Impact Assessment, concluding that whilst the health and well-being impacts of the Scheme would not be evenly

spatially distributed, there is no clear pattern of adverse or beneficial health outcomes disproportionately affecting areas of high or low multiple deprivation.

4.6 A Wales of Cohesive Communities

4.6.1 The fifth Well-Being Goal is “A Wales of Cohesive Communities - Attractive, viable, safe and well-connected communities”.

“Attractive, viable, safe and well-connected communities”

4.6.2 The design of the new section of motorway has been developed in consultation with the Design Commission for Wales, to provide a high quality design. In particular, the proposed River Usk Crossing would be a particular feature of the Scheme that has the capacity to be an iconic structure for Newport.

4.6.3 An assessment has been undertaken on the potential impact on communities and private assets as a result of the scheme, set out in Chapter 15 of the Environmental Statement. Within the footprint of the new motorway, there are residential and commercial properties and agricultural land and farm holdings. Whilst there would be no loss of community facilities or tourist attractions currently in use, some ‘Land used by the Community’ (e.g. common land, town and village greens, fuel and field garden allotments and public open space) would be affected. Mitigation measures would take the form of exchange land that would be offered as a replacement to the common land and allotments affected by the new section of motorway. A number of residential and commercial properties would require demolition. The owners and occupiers of property that would be demolished to accommodate the new section of motorway would be financially compensated for their loss.

4.6.4 The Wider Economic Impact Assessment demonstrates how the Scheme would improve accessibility and considers the likely benefits to land uses and investment opportunities as a result of the Scheme, making South Wales a more attractive place to live, work and invest.

4.6.5 The Scheme would reduce journey times by providing a faster route for strategic traffic using the existing M4 and by providing greater capacity to reduce issues of congestion on the existing route. Importantly, by creating an alternative route between Junctions 23 and 28 of the M4, the Scheme would also improve the resilience of the transport network such that delays caused by traffic incidents and highway maintenance would be reduced.

4.6.6 As set out in Chapter 14 of the Environmental Statement, where local highways are to be permanently stopped up due to the land take associated with the new section of motorway, appropriate alternative access arrangements, e.g. overbridges, are included within the Scheme, which would be constructed offline with appropriate access management measures in place. The same would be the case for existing overbridges and underpasses affected by the Scheme.

4.6.7 The Docks Link Road and Glan Llyn Link Road would be created as new public highways as part of the Scheme and new structures constructed to provide safe vehicular and non-motorised user access across the new carriageway and maintain links between local roads and settlements. There would be the need for some temporary diversions during construction, although these would be minimised with new structures constructed offline where feasible.

- 4.6.8** The proposed Complementary Measures include improvements in the connectivity of the local transport network, through the reclassification of the existing M4 between Junction 23A (Magor) and Junction 29 (Castleton) to a rural all-purpose trunk road; reclassification of the existing A48(M) between Junction 29 (Castleton) and Junction 29A (St Mellons) to a rural all-purpose trunk road; remodelling of Junction 25 and 25A on the existing M4 to improve access to Caerleon from the west; provision of infrastructure for non-motorised users; and connection between M48, M4 and B4245.

4.7 A Wales of Vibrant Culture and Thriving Welsh Language

- 4.7.1** The sixth Well-Being Goal is “*A Wales of Vibrant Culture and Thriving Welsh Language - a society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts and sports and recreation*”.

- 4.7.2** This goal encapsulates a number of aspects of sustainability which have been split out in the sections below.

“Promotes and protects culture, heritage and the Welsh language”

- 4.7.3** The Scheme will enhance reliability and resilience in terms of journeys from England, and elsewhere, to West Wales and is thus likely to support tourism and employment opportunities associated with tourism. The Welsh Government’s policy on the Welsh language “A living language: a language for living” (Welsh Government, 2012) identifies the community as one of 5 strategic areas and states:

“The language renewal task must go hand in hand with the work of improving social infrastructure of these areas to help ensure that better employment opportunities and more affordable housing become available, so that people can remain in their communities” (page 34)

- 4.7.4** Accordingly, by supporting tourism in Welsh speaking areas in South West Wales, the Scheme supports the Welsh language.

- 4.7.5** It has been identified in the Cultural Heritage chapter of the Environmental Statement that the route of the new section of motorway would have an impact on heritage features, including the loss of the Magor Vicarage and affect the Gwent Levels Landscape of Outstanding Historic Interest. A Cultural Heritage Mitigation Plan has been prepared and describes measures to offset these impacts.

- 4.7.6** To promote and protect the Welsh language, the communication strategies for the Scheme have been developed in accordance with the duties of the Welsh Government, including publication of information to stakeholders provided in both Welsh and English and engagement opportunities provided to Welsh speakers.

- 4.7.7** In accordance with the Welsh Language Act, all new signage on the new section of motorway and existing M4 would be bilingual.

“Encourages people to participate in the arts, and sports and recreation”

4.7.8 The proposed improvements in journey times, reliability and resilience would make it easier and more attractive for people to visit arts and sporting venues.

4.7.9 In a more local context, Chapter 14 of the Environmental Statement looks at the potential impacts on public rights of way (PROW) network, including promoted walking and cycling routes. This identifies that some PROWs would have to be permanently stopped up, with proposed new diversions and links in the existing network. There would also be the need for some temporary closures and diversions, with appropriate management measures. Two of the routes impacted are the Wales Coast Path and the National Cycle Network NR4. Where these impacts occur, appropriate mitigation is proposed. In addition, new footpaths and cycleways are provided as part of the Scheme, providing new active travel facilities, in support of the Active Travel (Wales) Act 2013.

4.8 A Globally Responsible Wales

4.8.1 The seventh and final Well-Being Goal is *“A Globally Responsible Wales - a nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether doing such a thing may make a positive contribution to global well-being”*.

“When doing anything to improve the economic, social, environmental and cultural well-being of Wales, takes account of whether such a thing may make a positive contribution to global well-being”

4.8.2 The three aims of the Scheme (as stated in The Plan, 2014) are as follows.

“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, across Wales, and enabling access to international markets; and

To produce positive effects overall on people and the environment, making a positive contribution to the overarching Welsh Government goals to reduce greenhouse gas emissions and to making Wales more resilient to the effects of climate change.”

4.8.3 The Scheme has been proposed by the Welsh Government in order to deliver significant benefits to the strategic network for Wales. As explained in Chapter 3 of this report, the existing M4 in South Wales forms part of the Trans-European Transport Network (TEN-T), and plays a key strategic role in connecting South Wales with the rest of Europe. It is a key east-west route, being the main gateway into South Wales and one of the most heavily used roads in Wales. The M4 is critical to the Welsh economy as it facilitates the transport of goods, links people to jobs and employment sites and serves the Welsh tourism industry. The predicted transport benefits of lower journey times, improved reliability and enhanced network resilience would improve transport connections within Wales

and to England, the Republic of Ireland and the rest of Europe on all modes on the international transport network.

5 Conclusions

- 5.1.1** In considering the principles of sustainable development and the wellbeing goals of the Well-Being of Future Generations Act, this report summarises the wide range of opportunities and benefits of the Scheme having regard to the potential impacts and proposed mitigation.
- 5.1.2** The report demonstrates that the Scheme would generate opportunities to improve the economic prosperity of the region, as well as to help create a healthier and more cohesive community.
- 5.1.3** Relevant assessments have been undertaken to understand the environmental effects of the Scheme, identifying impacts on important ecological resources, the loss of heritage assets and impacts arising from the proposed land take of the new section of motorway. These have been minimised where feasible, with appropriate mitigation and enhancement strategies proposed to offset the impacts.
- 5.1.4** The proposed construction methodology would use resources efficiently and would provide employment opportunities, including commitments to employ local workers. The estimated carbon emissions from the construction of the Scheme are a small fraction of the total emissions. The use of the proposed new section of motorway would result in a marginal reduction of user carbon emissions when compared to without the Scheme.
- 5.1.5** In conclusion, whilst acknowledging the potential impacts of the Scheme, these are balanced with opportunities which align with the well-being goals, as far as they are currently developed, and therefore the Scheme is considered to align with the Welsh Government's principles of sustainable development.

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