



Llywodraeth Cymru
Welsh Government

Welsh Government

M4 Corridor Around Newport

The Plan

Strategic Environmental Assessment: Post-Adoption Statement



July 2014

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SEA Environmental Report: Consideration of Statutory Consultee Responses

POST-ADOPTION SEA STATEMENT

Post-Adoption SEA Statement for:

- M4 Corridor around Newport Plan.

Adopted on:

- July 2014.

Responsible Authority:

- Welsh Government.

POST-ADOPTION SEA STATEMENT: INTRODUCTION

This document (referred to here as the post-adoption SEA Statement) has been prepared in accordance with Regulation 16 of the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (S.I. 2004/1656 (W/170)).

POST-ADOPTION SEA STATEMENT: AVAILABILITY OF DOCUMENTS

Website

The full Plan, as adopted, along with the Environmental Report and post-adoption SEA Statement are available on the Welsh Government's project website at:

- www.m4newport.com

Office Address

The full Plan, as adopted, along with the Environmental Report and post-adoption SEA Statement may also be inspected free of charge (or can be requested for a reasonable charge) at the principle office of the Welsh Government, or at the Newport Central Library:

- Welsh Government, Cathays Park, Cardiff CF10 3NQ;
- Newport Central Library, NP20 1PA.

Times at which the documents may be inspected or a copy obtained:

- 09:00 to 17:00.

Glossary

The following terms are referred to in this Strategic Environmental Assessment (SEA) Statement of the M4 Corridor around Newport Plan.

Table (i): Glossary of Terms

Adopted Plan	<p>This is the Welsh Government's adopted strategy to solve transport related problems affecting the M4 Corridor around Newport in South Wales – a new section of motorway between Magor and Castleton to the south of Newport and complementary measures:</p> <ul style="list-style-type: none"> • Reclassification of the existing motorway between Magor and Castleton - as a trunk road could enable traffic management, safety and revised access arrangements; • A connection between the M4, M48 and B4245 - would provide relief to Junction 23A and to the local road network. It would also provide improved access to proposed park and ride facilities at Severn Tunnel Junction; • Promoting the use of cycling - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure; and • Promoting the use of walking - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure.
AIES	<p>Assessment of Implications on European Sites. A process for the assessment of the implications of highway construction or improvement schemes/projects on protected sites, at the European level, where such sites are designated for their nature conservation interests. The AIES process is set out in the Design Manual for Roads and Bridges HD44/09.</p>
Alternative / Reasonable Alternative	<p>These are alternative options to the Welsh Government's preferred strategy to address transport related problems on the M4 Corridor around Newport. For an alternative to be considered as a Reasonable Alternative, the Welsh Government considers it should be capable of addressing the problems and achieving the transport planning objectives for the M4 Corridor around Newport. The Reasonable Alternatives were outlined in the draft Plan, and included a new dual carriageway (Red Route) being built to the south of Newport, or a motorway solution along a similar alignment (Purple Route) alongside some complementary highway management, walking and cycling initiatives. Only Reasonable Alternatives require strategic assessment against a draft Plan in an SEA Environmental Report.</p>

AQMAs	Air Quality Management Areas. Since 1997 local authorities in the UK have been carrying out a review and assessment of air quality in their area. The aim of the review is to assist authorities in carrying out their statutory duty to work towards meeting the national air quality objectives. If a local authority finds any places where the objectives are not likely to be achieved, it must declare an Air Quality Management Area there.
Black Route	<p>The Black Route and its complementary measures form the Welsh Government's preferred strategy to address transport related problems on the M4 Corridor around Newport. This comprises the construction of a new section of 3-lane motorway mainly following the protected TR111 'Black Route', between Junctions 23 and 29 (Magor to Castleton), including a new crossing of the River Usk south of Newport.</p> <p>The TR111 route to the south of Newport has remained protected for planning purposes since April 2006. The alignment of this proposed new section of motorway has been developed following extensive consultation, investigation and analysis.</p>
CBI	The Confederation of British Industry. A UK business lobbying organisation, providing a voice for employers at a national and international level.
Complementary Measures (of the Plan)	<p>In addition to the new section of motorway as published in the Plan, there are additional complementary measures that could assist in alleviating travel related problems on the M4 Corridor around Newport:</p> <ul style="list-style-type: none"> • Re-classify existing M4 between Magor and Castleton; • M4 / M48/ B4245 Connection; • Provide cycle friendly infrastructure; and • Provide walking friendly infrastructure.
DfT	<p>Department for Transport. This is a UK government department. It works to support the UK transport network and plans and invests in transport infrastructure and services.</p> <p>It should be noted that highways are a devolved function, which is dealt with autonomously by the Welsh Government.</p>

Do Minimum / Do Minimum Scenario	This is a scenario (sequence of future events) where intervention includes doing nothing above what is already planned or committed. In this case, it includes all recent network modifications (such as the Junction 24 improvement, the Variable Speed Limit system and the Steelworks Access Road (A4810)) and any committed schemes (such as the Junction 28/Bassaleg Roundabout/Pont Ebbw Roundabout improvement).
DMRB	Design Manual for Roads and Bridges.
draft Plan	The Welsh Government initially outlined its preferred strategy to solve transport related problems affecting the M4 Corridor around Newport in South Wales in its draft Plan published in September 2013. This was published for public consultation, alongside associated environmental, health and equality assessments of the draft Plan, which compared it to two Reasonable Alternatives, as well as a Do Minimum scenario.
draft Plan Associated Assessments	<p>In addition to the draft Plan Consultation Document, a number of environmental, health and equality based assessments of the draft Plan were undertaken in order to address the Environmental Assessment of Plans and Programmes (Strategic Environmental Assessment - SEA) (Wales) Regulations 2004, Conservation of Habitats and Species Regulations 2010, the Equality Act (2010) and WelTAG. The documents below report on the assessments of the draft Plan and formed part of the M4 Corridor around Newport draft Plan Consultation:</p> <ul style="list-style-type: none"> • SEA Environmental Report (and Non-Technical Summary); • Equality Impact Assessment Report (EqIA); • Health Impact Assessment Report (HIA); and • Consideration of the Options for the M4 Corridor around Newport in relation to the requirements of the Habitats Regulations. <p>These assessments have been updated to take into account the responses to the draft Plan Consultation, and are published alongside the Plan for the M4 Corridor around Newport.</p> <p>The 'Consideration of the Options for the M4 Corridor around Newport in relation to the requirements of the Habitats Regulations' report has been developed to form the Strategic Habitats Regulations Assessment (SHRA).</p>

Consultation Participation Report	Once the Consultation ended, all responses were collated, analysed and considered. The Consultation Participation Report has been prepared, which summarises the responses to the engagement and consultation process. The responses have helped the Welsh Government to review and finalise the associated assessments. The Consultation Participation Report is published alongside the Plan for the M4 Corridor around Newport.
EIA	Environmental Impact Assessment (EIA) is an assessment of the possible impacts that a proposed project may have on the environment. The purpose of the assessment is to ensure that decision makers consider the environmental impacts when deciding whether or not to proceed with a project. European Union Directive (85/337/EEC) on Environmental Impact Assessments (known as the EIA Directive) was amended in 2009.
EqIA	<p>Equality Impact Assessment. A way of examining and analysing services, policies and strategies that identify existing and potential impacts on certain groups of people, and sometimes individuals. The Welsh Government has specific and general duties in relation to equality and human rights, in accordance with the Equality Act 2010, The Government of Wales Act 2006 and The Human Rights Act 1998.</p> <p>An EqIA Report formed part of the draft Plan Consultation and has been updated to take into account comments received from the Welsh Government's Fairer Futures department and Department of Economy, Transport and Science's Equality Support Unit and others. This also takes into consideration the equality data collected as part of the draft Plan Consultation.</p> <p>A strategy level EqIA is published alongside the Plan for the M4 Corridor around Newport.</p>
EU Directive	An EU directive is a legislative act of the European Union, which requires member states to achieve the directive without dictating the means of how to achieve that result.
European Marine Site (EMS)	The term 'European Marine Site' collectively describes Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) that are covered by tidal waters and protect some of our most important marine and coastal habitats and species of European importance.
Existing M4	The term 'existing M4' or 'existing motorway' is used to define the M4 around Newport, J23 to J29 (Magor to Castleton).

HIA	<p>Health Impact Assessment. A process that considers how the health and well-being of a population may be affected by a proposed action, be it a policy, programme, plan or a change to the organisation or delivery of a particular public service. HIA is a mandatory requirement of transport appraisal.</p> <p>A HIA Report formed part of the draft Plan Consultation and has been updated to take into account comments received from the Wales Health Impact Assessment Support Unit (WHIASU) and others.</p> <p>A strategy level HIA is published alongside the Plan for the M4 Corridor around Newport.</p>
LDP	Local Development Plan. The required statutory development plan for each local planning authority area in Wales. This includes a vision, strategy, area wide policies for development types, land allocations, and where necessary policies and proposals for key areas of change and protection.
LNR	Local Nature Reserve. A local site of importance for wildlife, geology, education or public enjoyment.
M4 CEM	M4 Corridor Enhancement Measures. A Welsh Government initiative set up to explore and resolve issues of capacity, safety and resilience along the M4 Corridor in South East Wales.
M4 Corridor around Newport	The M4 Corridor around Newport is the term used to brand the current Welsh Government's work on its preferred strategy to address transport related problems on the M4 Corridor around Newport.
NAPPAs	<p>Noise Action Planning Priority Areas. Noise maps and associated plans are managed by the Welsh Government and local authorities to find where noise levels are high and help create noise action plans to address the issue.</p> <p>NAPPAs have been superseded by 'Priority Areas' in the 'Welsh Government Noise Action Plan'; published 2013. Relevant extant documents make reference to NAPPAs; consequently, the term NAPPAs is used within this document in preference to Priority Area.</p>

New M4 / M4 Relief Road	A South Wales Area Traffic Survey (SWATS) Report (1990) identified the need for substantial improvement to the M4 to address a growing capacity issue on the motorway, in particular the section between Magor and Castleton. As a consequence, a proposal for a relief road around Newport (which became known as the 'M4 Relief Road', and later, the 'New M4 Project' as a new dual 3-lane motorway to the south of Newport) was included in the Welsh Trunk Road Forward Programme in 1991. An M4 Relief Road Preferred Route was published in 1995 and amended in 1997. Following Ministerial Review in 2004, the 'New M4 Project' was the subject of a thorough re-examination, culminating in a TR111 notice being published in 2006 to protect a revised route corridor. A written statement in July 2009, by the then Deputy First Minister Ieuan Wyn Jones, announced that the New M4 was not affordable.
Preferred Route	The Welsh Government may decide to announce a Preferred Route for the main element of the Plan, a new section of motorway to the south of Newport, which would protect the corridor for planning purposes.
Preferred Strategy	The Welsh Government's preferred strategy is a package of measures aimed at achieving identified objectives and addressing transport related problems affecting the M4 Corridor around Newport in South Wales. The Welsh Government has published its preferred strategy within the Plan for the M4 Corridor around Newport. When implemented, the Plan will lead to a new three lane motorway being built to the south of Newport, alongside some complementary measures that include highway management, walking and cycling initiatives.
Public Transport Overview Report and Update	The M4 CEM Public Transport Overview (2012) was revised as an Update (2013) and provided a study that shows that new or improved public transport services are likely to have only minimal impact with respect to reducing traffic on the M4. The Update took into account the potential impacts of the Cardiff Capital Region Metro and rail electrification.

Purple Route	<p>The Purple Route and its complementary measures were considered as a Reasonable Alternative during the development of the Plan. It comprises a new section of 3-lane motorway along a similar route to that which is proposed for the Red Route (dual 2-lane all-purpose road). A difference between the two routes being the Purple Route has a more northerly alignment to cross the northern end of the North Dock at the Port of Newport.</p> <p>The alignment of the Purple Route is such that the impact on the Port of Newport is minimised. However, there could be significant impact upon the Newport City Council's Docks Way landfill site. The route runs close to the residential area, Duffryn. There are also on-going and potential further development sites along this route.</p>
Ramsar Site	<p>Ramsar sites are internationally important wetlands, designated under the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar (Iran), 2 February 1971. UN Treaty Series No. 14583. As amended by the Paris Protocol, 3 December 1982, and Regina Amendments, 28 May 1987.</p>
Reclassification	<p>The Plan's proposed complementary measures would lead to the existing M4 between Magor and Castleton being reclassified as a trunk road, if a new motorway is built to the south of Newport.</p> <p>Reclassifying the existing motorway as a trunk road could enable traffic management, safety and revised access measures.</p> <p>A Reclassification Report has been prepared to outline potential high level options for the existing motorway, when it is reclassified as a trunk road, after the new motorway is operational.</p>

Red Route	<p>The Red Route and its complementary measures were considered as a Reasonable Alternative during the development of the Plan. It involves the construction of an additional high quality road to the south of Newport, as a new section of dual carriageway. As a dual carriageway on its corridor alignment, the road could be delivered in phases by tying into the existing road network in Newport. Delivery could thus be phased with availability of funding. However, the main benefits would only be realised when the route is complete.</p> <p>The alignment of the Red Route is further north compared to that of the Black Route and the impact on the Port of Newport operations may be less. However, the alignment would pass through and have significant impact upon the Newport City Council's Docks Way landfill site. The route runs close to the residential area, Duffryn. There are also on-going and potential further development sites along this route.</p>
Relevant Documents	The 'associated assessments' described in 'draft Plan Associated Assessments' above, are termed 'relevant documents' within the context of SEA.
Route Options	Route Options form part of the Design Manual for Roads and Bridges (DMRB) process and are more detailed alignment options for appraisal purposes, as part of scheme development work.
SAC	Special Area of Conservation. Strictly protected sites with listed habitat types and species that are considered to be most in need of conservation at a European level (excluding birds).
Scheme / Project	<p>For individual schemes or projects, the appropriate level of appraisal is more detailed, quantitative and evidence- based.</p> <p>The proposed new motorway that forms the main element of the Plan, at a strategy level of detail, will now be progressed as a scheme/project.</p>
SEA	Strategic Environmental Assessment. A process that provides for the high level protection of the environment, by ensuring the integration of environmental considerations into the preparation of plans and programmes and to contribute to the promotion of sustainable development and environmental protection.

SEWTA	The South East Wales Transport Alliance is a consortium of 10 local authorities which prepares and co-ordinates regional transport policies, plans and programmes on behalf of its constituent councils.
SDR	Southern Distributor Road. In this case, the A48 Southern Distributor Road, Newport.
SHRA	<p>Strategic Habitats Regulations Assessment. A process that considers the potential effects of plans and programmes on European sites (protected habitats). A document 'Consideration of the Options for the M4 Corridor around Newport in relation to the requirements of the Habitats Regulations' formed part of the draft Plan Consultation.</p> <p>A Strategic Habitats Regulations Assessment has been prepared that takes into account comments from Natural Resources Wales, and others, and is published alongside the Plan for the M4 Corridor around Newport.</p>
SM	Scheduled Monument. A registered monument considered to be of national importance by the Welsh Government.
SPA	Special Protection Area. Strictly protected sites at a European level, classified for rare and vulnerable birds and for regularly occurring migratory species.
SSSI	Sites of Special Scientific Interest. Legally protected sites for wildlife and geology conservation.
Strategic Alternatives Report	A 'Strategic Appraisal of Alternatives Considered during draft Plan Consultation Report' has been prepared to address suggested alternative options put forward by respondents to the draft Plan Consultation. This report has informed this SEA Statement and other relevant associated assessments of the Plan.
Strategy, Plan or Programme	<p>A strategy, plan or programme sets out broad objectives, identifies measures to achieve these and proposes a typically broad package of interventions to achieve the objectives. The appropriate level of appraisal is also broad, and at a strategy level, it may only be possible to undertake appraisal qualitatively.</p> <p>The Welsh Government's preferred strategy to address transport related problems on the M4 Corridor around Newport is outlined in the Plan.</p>

SWATS	South Wales Area Traffic Study.
TEMPRO	Trip End Model Presentation Program. Software used for transport planning purposes.
TEN-T	Trans-European Transport Network.
TPOs	Transport Planning Objectives.
TR111 Notice	Once a Preferred Route of a transport scheme is announced, the Welsh Government serves a statutory TR111 notice on the local planning authorities requiring the line to be protected from development.
UDP	Unitary Development Plan. It sets out a range of policies and proposals relating to future development, and deals with the use and conservation of land and buildings within local planning authorities. All UDPs are to be replaced by a Local Development Plan (LDP).
WelTAG	<p>Welsh Transport Planning and Appraisal Guidance is a transport appraisal tool applicable to transport projects, plans and programmes in Wales. The Welsh Government requires that major transport initiatives seeking government funding are appraised with this guidance.</p> <p>An M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Report recommended the main elements that form part of the draft Plan.</p>
WHIASU	Wales Health Impact Assessment Support Unit.

Non-Technical Executive Summary

Introduction

The SEA Statement has been prepared in accordance with Regulation 16 of the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (the 'SEA Regulations') (S.I. 2004/1656 (W/170)).

The development of the draft Plan Environmental Report considered four high-level options for a Corridor around Newport. These were:

- The draft Plan (preferred strategy) – a new section of motorway mainly following the TR111 protected route: the **Black Route** and its complementary measures;
- Reasonable Alternative – a new section of dual 2-lane all-purpose road: the **Red Route** and its complementary measures;
- Reasonable Alternative – a new section of motorway along Alternative Alignment to the south of Newport: the **Purple Route** and its complementary measures;
- The **Do Minimum Scenario** – no change to existing situation incorporating planned or committed measures.

Full details on the Reasonable Alternatives, the Do Minimum Scenario and the complementary measures are presented within the Environmental Report.

As part of the development of the Plan, its effects were assessed through Strategic Environmental Assessment (SEA), Health Impact Assessment (HIA), Equality Impact Assessment (EqIA) and Strategic Habitats Regulations Assessment (SHRA). The SEA Statement outlines how these processes influenced the development and adoption of the Plan.

The SEA process has shown that the draft Plan published in September 2013, would have fewer negative environmental effects by promoting improvements in air quality for longer, avoiding a major landfill site and being located further away from the residential area at Dyffryn and the Grade 1 listed Newport Transporter Bridge; whilst meeting the Plan objectives more positively than the other Reasonable Alternatives.

The SEA process took into account consultees' opinions, including submitted alternatives, and the conclusions of the SEA Environmental Report, Strategic Habitats Regulations Assessment, Health Impact Assessment, Equality Impact Assessment and Consultation Participation Report.

Following an extensive development period, Welsh Government has adopted the ‘M4 Corridor around Newport Plan’ – a new section of motorway between Magor and Castleton to the south of Newport and complementary measures:

- **Reclassification of the existing motorway between Magor and Castleton - as a trunk road could enable traffic management, safety and revised access arrangements;**
- **A connection between the M4, M48 and B4245 - would provide relief to Junction 23A and to the local road network. It would also provide improved access to proposed park and ride facilities at Severn Tunnel Junction;**
- **Promoting the use of cycling - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure; and**
- **Promoting the use of walking - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure.**

The details of the above complementary measures will be developed as part of scheme development.

At the detailed design stage an Environmental Impact Assessment (EIA) and project level HRA, known as ‘Assessment of Implications on European Sites (AIES)’, will facilitate an increased level of detailed assessment of potential environmental effects and enable consideration of additional opportunities for mitigation and enhancement.

Reasons for Adopting the draft Plan, in the light of the other Reasonable Alternatives

Options Assessed in the SEA

The full strategic assessment of Reasonable Alternatives and the Do Nothing Scenario is presented in the Environmental Report; a summary is also presented in Table 8 of the SEA Statement.

The Environmental Report identified that the ‘Do Minimum Scenario’ would lead to increasingly adverse environmental effects and that the Red Route option would lead to greater adverse environmental effects than the Black and Purple Route options. In particular, the assessment identified that benefits of the Red Route would be short-lived relative to the Black and Purple Route options.

The assessment showed that primarily as a consequence of the Black Route alignment being located further from residential developments than the Red Route and Purple Route options, and that the Black Route avoids the Dock’s Way landfill site, the Black Route and its complementary measures performs better than the Red Route and Purple Route. As such the Black Route is considered to be the best option to be taken forward as the Welsh Government’s preferred strategy.

Consideration of Alternatives suggested during Consultation

A number of alternative solutions were suggested during consultation and during public engagement exhibitions. The full appraisal of these alternatives is included in the M4 Corridor around Newport Strategic Appraisal of Alternatives Considered during draft Plan Consultation report; an abridged version is provided in Table 7 of the SEA Statement.

In summary, it was determined that none of the alternative solutions proposed during consultation could reasonably deliver the objectives of the draft Plan and therefore could not be considered as Reasonable Alternatives and thus would not need to be assessed against the draft Plan.

Adoption of the Preferred Strategy

Of the high-level options considered within the SEA Environmental Report, the appraisal of the Black Route and its complementary measures outperformed the remaining options and will provide long-term benefits in relation to the draft Plan objectives.

Overall the Black Route performs better than the Reasonable Alternatives and the Do Minimum Scenario; particularly in terms of air quality, but also provides benefits in terms of: climate change adaptation, noise and vibration, population and health. The Black Route also provides a long-term improvement, based on greater capacity, relative to the Red Route and Do Minimum Scenario.

The Black Route is predicted to enhance air quality for a significant number of properties along the existing M4, whilst having a minor effect on a relatively small proportion of residences along the new route; none of which would likely exceed national air quality standards.

Furthermore, of the three highway options, the Black Route would have the least effects on residential developments since it is located furthest from Dyffryn, has the least effects on soil and contamination by avoiding the Dock's Way landfill site and is the farthest from the Newport Transporter Bridge, thus reducing potential effects on this Grade 1 Listed heritage feature.

How Environmental Considerations have been Integrated into the Plan

To ensure environmental considerations were integrated throughout the development of the draft Plan, an SEA was undertaken in parallel, following the requirements of the SEA Regulations. The SEA process ensured the potential significant effects of the draft Plan on the environment were considered throughout its development.

The SEA process aimed to ensure that environmental considerations were integrated into the Plan by:

- Undertaking extensive (preliminary) development work, guided by SEA principles and including consultation with statutory and public consultees, to develop alternatives to be assessed against the draft Plan.
- Taking into account statutory consultee comments following issue of a scoping report outlining the key environmental issues, the options to be

assessed and the scope of the draft Plan, to be addressed in the Environmental Report.

- Producing the Environmental Report in parallel with the development of the draft Plan, thus enabling recommendations from the SEA to be integrated into the draft Plan.
- Taking account of statutory and public consultee comments following consultation on the draft Plan.
- Integration of mitigation to avoid, reduce and offset potential adverse effects or enhance positive effects into the Plan and commitment to monitoring uncertain or identified significant environmental effects (positive and negative).

Integration of Environmental Considerations

An SEA framework was used to structure each of the assessment stages. Environmental objectives were designed to deliver the aims and goals of the M4 Corridor around Newport, ensuring the objectives of the draft Plan would be met. The environmental objectives cover all the environmental topics listed in the SEA Regulations, namely: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors. The environmental objectives are shown in Table 3 of the SEA Statement.

How the Environmental Report has been taken into Account

The SEA was undertaken alongside the development of the draft Plan. The SEA Environmental Report was subject to public consultation between 23rd September 2013 and 16th December 2013, and influenced the development of the draft Plan by identifying environmental enhancements and setting out requirements for mitigation where adverse effects were identified. The results of the consultation and associated assessments helped develop the Plan and enabled an informed decision to be made on the adoption of the Plan.

The Environmental Report developed mitigation measures and integrated these measures into the Plan; consequently, potential negative effects can be shown to be mitigated as far as practicable, positive effects enhanced, and uncertain significant effects (negative and positive) monitored through Plan implementation.

Mitigation measures for each environmental indicator are included within Table 4 of the SEA Statement. Detailed mitigation will be provided through the EIA process during the detailed design process. The Environmental Report proposed monitoring for potential significant effects to evaluate the efficacy of proposed mitigation, maintain an up-to-date baseline for project level assessments and to evaluate predicted trends of significant receptors. Mitigation measures and monitoring requirements are integral to the M4 Corridor around Newport Plan.

How the Opinion of Statutory Consultees, Key Stakeholders and the Public have been taken into Account

Scoping Report Consultation

The Welsh Government consulted statutory consultees (Cadw, Natural Resources Wales (NRW), Environment Agency and Natural England) on the scope of the SEA between 9th July 2013 and 16th August 2013. Statutory consultee responses to the Scoping Report were taken into account in the development of the Environmental Report; additionally, consideration was given to non-statutory feedback received from the Royal Society for the Protection of Birds.

The SEA Environmental Report (Appendix A) provides details of the consultation responses received from statutory consultees. Environment Agency and Natural England returned comments stating that since the proposal is located solely within Wales, neither organisation anticipated significant environmental effects occurring in England.

Environmental Report Consultation

Consultation on the draft Plan and its associated assessments commenced on 23rd September 2013 for a 12 week period, ending on 16th December 2013.

Statutory responses to the Environmental Report were received from Natural Resources Wales and Natural England; these were taken into account in finalising the Plan. Cadw's comments on the Consultation Document were also taken into account in finalising the Plan. No response was received from the Environment Agency in line with their scoping response.

374 responses were received in response to the SEA Environmental Report; these are summarised in the M4 Corridor around Newport: Consultation Participation Report¹. Due to the volume of responses and the detail provided, the key themes have been identified and addressed in Table 6 of the SEA Statement. The key themes have been informed by the Consultation Participation Report, which has reviewed and analysed comments by all respondents. The common themes relevant to SEA are summarised as follows:

- The SEA process;
- Level of detail provided or required;
- Consideration of alternatives;
- Mitigation and monitoring; and
- Topic specific queries.

¹ M4 Corridor around Newport: Consultation Participation Report (2014).

Measures to be taken to Monitor Environmental Effects of the Plan

A detailed framework has been prepared to monitor the significant environmental effects, both positive and negative, of implementing the M4 Corridor around Newport Plan. Table 9 of the SEA Statement identifies the monitoring commitments against relevant receptors. The results of this monitoring are expected to be published by Welsh Government as an Annual Monitoring Report, including a non-technical summary.

Monitoring results will be reviewed periodically to ensure that legislative compliance is maintained. Should monitoring indicate that compliance thresholds may be exceeded, integrated mitigation measures will be implemented, or new mitigation measures developed, to avoid or reduce effects.

Supporting and Subsequent Assessments

Adoption of the Plan has been supported by: Strategic Habitats Regulations Assessment, Health Impact Assessment and Equality Impact Assessment, in addition to the SEA process.

During scheme level implementation of the Plan, the EIA and AIES processes will review the work undertaken during the SEA and SHRA and include collation of a detailed baseline following extensive surveys, modelling and assessments, further statutory consultation and production of an Environmental Statement and AIES. In summary, the EIA and AIES processes will focus and influence the overarching scheme development to avoid, minimise and if required offset any significant adverse effects on the environment in addition to identifying further opportunities to promote positive effects and develop environmental enhancements.

Availability of this Document

The M4 Corridor around Newport Plan, along with the Environmental Report and the post-adoption SEA Statement are available to download online at www.m4newport.com and are available to view at the following deposit points: Welsh Government, Cathays Park, Cardiff CF10 3NQ and Newport Central Library, NP20 1PA.

1 Introduction

1.1 Adoption of the M4 Corridor around Newport Plan

Following an extensive development period, Welsh Government has adopted the ‘M4 Corridor around Newport Plan’ – a new section of motorway between Magor and Castleton to the south of Newport and complementary measures:

- **Reclassification of the existing motorway between Magor and Castleton - as a trunk road could enable traffic management, safety and revised access arrangements;**
- **A connection between the M4, M48 and B4245 - would provide relief to Junction 23A and to the local road network. It would also provide improved access to proposed park and ride facilities at Severn Tunnel Junction;**
- **Promoting the use of cycling - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure; and**
- **Promoting the use of walking - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure.**

The details of the above complementary measures will be developed as part of scheme development.

As part of the development of the Plan, potential effects were assessed through Strategic Environmental Assessment (SEA), Health Impact Assessment (HIA), Equality Impact Assessment (EqIA) and Strategic Habitats Regulations Assessment (SHRA)². This statement explains how the SEA, SHRA, HIA and EqIA processes influenced the development of the Plan.

The SEA process has shown that the draft Plan published in September 2013, would have fewer negative environmental effects by promoting improvements in air quality for longer, avoiding a major landfill site and being located further away from the residential area at Dyffryn and the Grade 1 listed Newport Transporter Bridge; whilst meeting the Plan objectives more positively than the other Reasonable Alternatives.

The SEA process took into account consultees’ opinions, including submitted alternatives, and the conclusions of the SEA Environmental Report³, Strategic Habitats Regulations Assessment², Health Impact Assessment, Equality Impact Assessment and Consultation Participation Report.

² M4 Corridor around Newport Plan Strategic Habitats Regulations Assessment (2014)

³ M4 Corridor around Newport SEA Environmental Report (2013)

1.2 Development Process

The M4 Corridor around Newport has been subject to a process of Strategic Environmental Assessment (SEA), as required under the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (S.I. 2004/1656 (W/170)); hereafter referred to as the SEA Regulations. This has included the following activities:

- Taking into account the views of statutory consultees, namely Natural Resources Wales, Cadw, Natural England and the Environment Agency, regarding the scope and level of detail that was appropriate for the Environmental Report;
- Preparing an Environmental Report⁴ on the likely significant effects on the environment of the draft Plan⁵. This included consideration of:
 - the baseline data relating to the current state of the environment;
 - links between the draft Plan and other relevant strategies, policies, plans, programmes and environmental protection objectives;
 - existing environmental problems affecting the M4 around Newport;
 - the draft Plan's likely significant effects on the environment (positive and negative);
 - measures envisaged for the prevention, reduction and offsetting of any significant adverse effects;
 - an outline of the reasons for selecting the alternatives chosen; and
 - monitoring measures to ensure that any unforeseen environmental effects will be identified allowing for appropriate remedial action to be taken.
- Consulting on the Environmental Report and relevant documents;
- Taking into account the Environmental Report and the results of consultation in making final decisions regarding the draft Plan; and
- Committing to monitoring the significant environmental effects of the implementation of the draft Plan. This will also identify any unforeseen adverse significant environmental effects and enable appropriate remedial action.

⁴ M4 Corridor around Newport SEA Environmental Report (2013)

⁵ M4 Corridor around Newport draft Plan Consultation Document (2013)

1.3 Post-Adoption SEA Statement

This document (the ‘SEA Statement’) has been prepared in accordance with Regulation 16 of the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004.

Regulation 16 (4) introduces the requirements of an SEA Statement; as follows:

The particulars referred to in paragraphs (1)(b)(iii) and (3)(c)(iii) are—

- a) how environmental considerations have been integrated into the plan or programme;*
- b) how the environmental report has been taken into account;*
- c) how opinions expressed in response to—*
 - i. the invitation in regulation 13(2)(d);*
 - ii. action taken by the responsible authority in accordance with regulation 13(4), have been taken into account;*
- d) how the results of any consultations entered into under regulation 14 have been taken into account;*
- e) the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and*
- f) the measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme.*

The requisite particulars listed above are considered in the sections described below:

- Section 2 describes how environmental considerations have been integrated into the Plan;
- Section 3 describes how the Environmental Report has been taken into account;
- Section 4 describes how the opinions of statutory consultees, key stakeholders and the public have been taken into account;
- Section 5 describes the reasons for choosing the Plan as adopted, in the light of the other Reasonable Alternatives dealt with;
- Section 6 describes the measures to be taken to monitor the significant environmental effects of Plan Implementation;
- Section 7 describes the supporting assessments of the Plan and subsequent assessments to support the implementation of the Plan; and
- Section 8 describes how to view or obtain copies of the Plan.

1.4 M4 Corridor around Newport Plan: Key Facts

Table 1: Key Facts

M4 Corridor around Newport Plan, Welsh Government	
Name of Responsible Authority	Welsh Government
Title of Plan	M4 Corridor around Newport
Purpose of Plan	The M4 Corridor around Newport aims to resolve issues of capacity, safety and resilience along the M4 Corridor around Newport, in South East Wales.
Subject	Transport
Area of the Plan	Newport, South Wales
Date Adopted	July 2014

2 How Environmental Considerations have been Integrated into the Plan

To ensure environmental considerations were integrated throughout the development of the draft Plan, a Strategic Environmental Assessment (SEA) was undertaken in parallel, following the requirements of the SEA Regulations. The SEA process ensured the potential significant effects of the draft Plan on the environment were considered throughout its development.

The SEA process aimed to ensure that environmental considerations were integrated into the Plan by:

- Undertaking extensive (preliminary) development work, guided by SEA principles and including consultation with statutory and public consultees, to develop alternatives to be assessed against the draft Plan.
- Taking into account statutory consultee comments following issue of a scoping report outlining the key environmental issues, the options to be assessed and the scope of the draft Plan, to be addressed in the Environmental Report.
- Producing the Environmental Report in parallel with the development of the draft Plan, thus enabling recommendations from the SEA to be integrated into the draft Plan.
- Taking account of statutory and public consultee comments following consultation on the draft Plan.
- Integration of mitigation to avoid, reduce and offset potential adverse effects or enhance positive effects into the Plan and commitment to monitoring uncertain or identified significant environmental effects (positive and negative).

2.1 Development of the M4 Corridor around Newport Plan

The Plan for the M4 Corridor around Newport⁶ has been informed by a comprehensive and inclusive appraisal process, which is summarised in Table 2. Previous work is outlined in more detail within the M4 Corridor around Newport SEA Environmental Report⁷. A summary is provided within the remainder of this section.

The M4 Corridor around Newport draft Plan and M4 Corridor around Newport WelTAG (Strategy Level) Appraisal Report⁸ outlined and appraised the Welsh Government's preferred strategy for addressing transport related problems on the M4 Corridor around Newport, alongside two Reasonable Alternatives and the Do Minimum scenario (doing nothing above what is already planned or committed).

⁶ M4 Corridor around Newport Plan (2014)

⁷ M4 Corridor around Newport SEA Environmental Report (2013), available at www.m4newport.com

⁸ M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Appraisal (2013), available at www.m4newport.com

In summary, the main element of the draft Plan was the provision of a section of three lane motorway between Junctions 23 and 29 on the south side of Newport, as defined within the TR111 Notice and termed the 'Black Route'. This also included complementary highway management, walking and cycling initiatives as follows:

- Reclassification of the existing motorway between Magor and Castleton - as a trunk road could enable traffic management, safety and revised access arrangements;
- A connection between the M4, M48 and B4245 - would provide relief to Junction 23A and to the local road network. It would also provide improved access to proposed park and ride facilities at Severn Tunnel Junction;
- Promoting the use of cycling - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure; and
- Promoting the use of walking - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure.

The details of the above complementary measures will be developed as part of scheme development.

The main elements of the two Reasonable Alternatives were the 'Red Route', which was a dual carriageway, and the 'Purple Route', which was a three lane motorway along a similar alignment to the Red Route. Both routes would also have complementary measures.

Alternatives to the draft Plan have been identified and assessed in the development of the draft Plan using Welsh Government's WelTAG Stage 1 (Strategy Level) Appraisal and supporting development work. This is an appropriate and recognised process for the identification and appraisal of transport strategies or schemes and gives equal consideration to all relevant alternatives. During the M4 CEM Programme, WelTAG appraisal was supported by extensive development work, which is publically available on project websites (www.m4cem.com and www.m4newport.com); this included development work built on historic appraisal undertaken since the early 1990s for the 'M4 Relief Road' and 'New M4 Project'. The M4 CEM WelTAG report⁹ explains how having established the problems and the need to tackle them, the Welsh Government involved stakeholders in exploring a wide range of possible ways of solving these problems and of delivering transport planning objectives. A long list of possible solutions was explored, with the findings informing the development of the draft Plan.

As explained in the M4 Corridor around Newport Stage 1 (Strategy Level) WelTAG report⁸, changes to affordability led to the further identification and assessment of alternatives. These processes identified and appraised the alternatives that would form components of the draft Plan and its 'Reasonable Alternatives', as published in the draft Plan Consultation Document and its associated assessments in September 2013.

⁹ M4 CEM WelTAG (Strategy Level) Appraisal Report (2012), available at www.m4cem.com

SEA requires an Environmental Report to be published alongside a draft Plan, for public consultation. This is to describe and assess reasons for the selection of a preferred strategy and 'Reasonable Alternatives' to that preferred strategy, compared to doing nothing above what is already planned or committed. The draft Plan Consultation Document explained this and cross-referenced the SEA Environmental Report, which was subject to consultation alongside the draft Plan¹⁰. An alternative must satisfy the proposer of a plan that it is able to meet the objectives for its draft Plan, to constitute a Reasonable Alternative. During this process, alternatives were rejected where they did not meet the objectives for the M4 Corridor around Newport. Consideration of alternatives during preparation of the draft Plan is set out in workshop reports, workbooks and the WelTAG appraisals; which are publically available on project websites (www.m4cem.com and www.m4newport.com).

Information on how alternatives have been dealt with throughout the SEA process is addressed in Section 5 of this report.

Having taken consultation responses on the draft Plan and its associated assessments into account, the Welsh Government has decided to adopt the draft Plan for the M4 Corridor around Newport. This will lead to a new section of motorway being built between Junctions 23 and 29 south of Newport, alongside complementary measures to:

- Reclassification of the existing motorway between Magor and Castleton - as a trunk road could enable traffic management, safety and revised access arrangements;
- A connection between the M4, M48 and B4245 - would provide relief to Junction 23A and to the local road network. It would also provide improved access to proposed park and ride facilities at Severn Tunnel Junction;
- Promoting the use of cycling - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure; and
- Promoting the use of walking - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure.

The details of the above complementary measures will be developed as part of scheme development. They will aim to maximise opportunities to complement the regional transport system, including proposals for the Cardiff Capital Region Metro.

¹⁰ Schedule 2 (8) of the SEA Regulations require the Environmental Report to outline the reasons for selecting the alternatives dealt with; this is outlined in the 2013 M4 Corridor around Newport SEA Environmental Report. It outlines the process by which the alternatives were refined in the 2012 M4 CEM Environmental Report. It outlines the reasons for expanding on the chosen alternative to include motorway options. This work was informed by the M4 CEM and M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) reports to which references and hyperlinks to the publically available reports were included

Table 2: M4 Corridor around Newport: Development Stages

Date	Plan-Making Stage	SEA Stage	Comments
2010 to 2013	Development work to inform a draft Plan; (M4 Corridor Enhancement Measures [M4 CEM]).	Pre-SEA	<p>This involved the identification of the aims and problems to be addressed and objectives to be met for the M4 Corridor around Newport.</p> <p>This led to the identification, appraisal and rationalisation of alternative options.</p> <p>The development work was guided by SEA principles to integrate sustainability objectives from the start of the assessment process. Statutory and public consultation was undertaken as a matter of good practice.</p>
July 2013	Evidence Gathering	Scoping Report	The Scoping Report was issued in accordance with Regulation 12 (5) of the SEA Regulations. The report also included a description of the preferred strategy, Reasonable Alternatives and a Do Minimum Scenario.
9 th July 2013 to 16 th August 2013	Evidence Gathering	Consultation with statutory consultees on Scoping Report	<p>Responses were received from Natural Resources Wales, Cadw, Natural England and the Environment Agency.</p> <p>A response was also received from a non-statutory organisation, the Royal Society for the Protection of Birds (RSPB), and was considered in the development of the draft Plan.</p>

Date	Plan-Making Stage	SEA Stage	Comments
July to September 2013	Preparation of draft Plan	Preparation of Environmental Report	<p>This involved the identification of a preferred strategy and its Reasonable Alternatives; informed by previous development work, transport appraisal and other associated environmental, health and equality assessments.</p> <p>The likely significant environmental effects of the preferred strategy, Reasonable Alternatives and the Do Minimum Scenario were assessed against defined environmental objectives.</p>
23 rd September 2013 to 16 th December 2013	Consultation on the draft Plan	Consultation on the Environmental Report	Responses were received from statutory consultees and the public.
July 2014	Adoption of the Plan	SEA Statement	SEA Statement issued in accordance with Regulation 16 (4).

2.2 Integration of Environmental Considerations

An SEA framework was used to structure each of the assessment stages. Environmental objectives were designed to deliver the aims and goals of the M4 Corridor around Newport, ensuring the objectives of the draft Plan would be met. The environmental objectives cover all the environmental topics listed in the SEA Regulations, namely: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors; this is shown in the Table 3 below.

Table 3: M4 Corridor around Newport SEA Objectives

Obj No.	Environmental Objective	SEA Topic
1	Improved air quality in areas next to the existing M4 around Newport.	Air, Climatic Factors, Human Health
2a	Reduce greenhouse gas emissions per vehicle and/or person kilometre.	Air, Climatic Factors, Human Health
2b	Ensure that effective adaptation measures to climate change are in place.	Climatic Factors
3	Reduce disturbance to people from high noise levels, from all transport modes and traffic within the existing M4 Corridor.	Noise, Human Health
4	Ensure that biodiversity is protected, valued and enhanced.	Biodiversity, Fauna, Flora, Soil, Water
5	Improved access to all services and facilities and reduce severance.	Population
6	Protect and promote everyone's physical and mental wellbeing and safety.	Human Health
7	Reduce transport related contamination and safeguard soil function, quality and quantity.	Soil, Water
8	Minimise transport related effects on surface and groundwater quality, flood plains and areas of flood risk.	Water, Biodiversity, Soil
9	Ensure the prudent and sustainable use of natural resources and energy.	Material Assets, Climatic Factors
10	Ensure that diversity, local distinctiveness and cultural heritage are valued, protected, celebrated and enhanced.	Cultural Heritage
11	Ensure that landscape and townscape is properly valued, conserved and enhanced.	Landscape

3 How the Environmental Report has been Taken into Account

The SEA was undertaken alongside the development of the draft Plan. The SEA Environmental Report was subject to public consultation and influenced the development of the draft Plan by identifying environmental enhancements and setting out requirements for mitigation where adverse effects were identified. The results of the consultation and associated assessments helped develop the Plan and enabled an informed decision to be made on the adoption of the Plan.

In particular, the Environmental Report helped to identify that the ‘Do Minimum Scenario’ would lead to increasingly adverse environmental effects. It also identified that the Red Route option would lead to greater adverse environmental effects than the Black and Purple Route options. In particular, the assessment identified that the benefits of the Red Route would be short-lived relative to the Black and Purple Route options. The assessment showed that primarily as a consequence of the Black Route alignment being located further from residential developments than the Red Route and Purple Route options, and that the Black Route avoids the Dock’s Way landfill site, the Black Route and its complementary measures performs better than the Red Route and Purple Route and as such is considered to be the best option to be taken forward as the Welsh Government’s preferred strategy.

The development of the draft Plan was initially informed by development work including WelTAG Stage 1 (Strategy Level) assessment, which does not consider mitigation measures to avoid, reduce or offset negative effects. Following the iterative approach of the SEA, the Environmental Report developed mitigation measures to avoid, reduce and offset potential adverse effects, or enhance positive effects. These measures were in part developed, or incorporated from, the development work to inform a draft Plan.

The Environmental Report developed mitigation measures and integrated these measures into the Plan; consequently, some potential negative effects can be shown to be mitigated, some positive effects enhanced, and uncertain significant effects (negative and positive) monitored throughout the Plan’s implementation.

Uncertainty surrounding the nature, location and scale of implementation measures precludes specification of detailed mitigation measures; consequently, the relevant implementation measures are included in Table 4 below. Detailed mitigation will be identified during the EIA process which will be undertaken with the detailed design.

The Environmental Report proposed monitoring for potential significant effects in order to evaluate the efficacy of proposed mitigation, maintain an up-to-date baseline for project level assessments and to evaluate predicted trends of significant receptors.

The recommendations are that the Plan should:

- Provide a framework for any subsequent project level assessment;
- Integrate relevant statutory consultee recommendations for survey, modelling, assessment and mitigation;
- Provide clarification on opportunities for enhancing positive effects in any subsequent appraisal and delivery; and
- Provide a starting point for additional scheme level assessment and mitigation of identified potential adverse effects in any subsequent appraisal and delivery once the relevant details are available.

Table 4: Potential Environmental Effects and Associated Mitigation

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
Air Quality	<ul style="list-style-type: none"> • Changes in air quality; • Air quality in areas directly affected by transport interventions; • Project level effects. 	<ul style="list-style-type: none"> • Implement emissions control during construction and maintenance activities; • Work in partnership with local authorities towards the delivery of the National Air Quality Strategy; • Undertake Air Quality Assessments to estimate total air pollution concentrations during the project stage; • Support measures to encourage alternative travel modes and smarter sustainable choices combined with measures to curb and ultimately reduce greenhouse gas emissions from transport. E.g. complementary measures including: provision of cycle-friendly and walking-friendly infrastructure and a link to the B4245 which may facilitate the enhancement of the park-and-ride facility at Severn Tunnel Junction thus encouraging use of public transport; • Consider air pollution when developing speed management strategies, Heavy Goods Vehicle (HGV) management plans, event management plans and weather management plans for the study area. Reclassification of the existing M4 would facilitate introduction of such measures; • Work to develop and evaluate traffic management systems which reduce vehicle emissions.

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
Greenhouse Gas Emissions	<ul style="list-style-type: none"> • Levels of greenhouse gas emissions. 	<ul style="list-style-type: none"> • Support measures to encourage alternative travel modes and smarter sustainable choices combined with measures to curb and ultimately reduce greenhouse gas emissions from transport. E.g. complementary measures including: provision of cycle-friendly and walking-friendly infrastructure and a link to the B4245 which may facilitate enhancement of the park-and-ride facility at Severn Tunnel Junction thus encouraging use of public transport; • Consider greenhouse gas emissions when developing speed management strategies, HGV management plans, event management plans and weather management plans for the study area. Reclassification of the existing M4 would facilitate introduction of such measures; • Consider air pollution and greenhouse gas emissions when promoting the long term phased introduction of Electric Vehicle Infrastructure in Wales; • Use of energy efficient network services such as street lights, lit signs, traffic lights, illuminated bollards and Intelligent Transport Systems including electronic signing and communications equipment; • Use of energy efficient technologies when tackling traffic congestion, including micro-renewables where feasible; • Encourage shift to renewable energy to supply network services.
Climate Change Adaptation	<ul style="list-style-type: none"> • Flood risk and flooding events on the transport network; • Project level effects. 	<ul style="list-style-type: none"> • Consider the implications of climate change on the design, construction and maintenance of the highway and highway structures, taking into account increased rainfall and warmer summer temperatures. For example, new roads should be equipped with appropriate sustainable drainage systems (i.e.

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
		<p>SUDS);</p> <ul style="list-style-type: none"> • Integrate custom attenuation ponds as ‘Water Treatment Areas’ with due consideration to benefiting biodiversity and landscape. These would be designed to store and dilute runoff in-combination with treatment via a reedbed filtration system prior to release to local watercourses. Any water released from drainage systems and attenuation ponds would be required to meet the requirements of the Water Framework Directive; • Use porous surfaces on areas of hard surfaces to reduce the risk of flooding and encourage infiltration.
Noise and Vibration	<ul style="list-style-type: none"> • Noise levels related to transport; • Project level effects. 	<ul style="list-style-type: none"> • Identify any receptors subject to noise levels that would cause them to qualify under the Noise Insulation Regulations; • Use low noise surfaces to reduce noise pollution, particularly in areas close to population and in sensitive areas; • Use noise barriers, bunds and secondary glazing to screen noise sensitive receptors where necessary; • Improve performance of noise control during construction and maintenance activities; • Manage temporary residual noise effects, i.e. where construction activities may still exceed noise level criteria despite the use of best working practices; • Consider noise nuisance when developing speed management strategies, HGV management plans and event management plans.

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
Biodiversity	<ul style="list-style-type: none"> • The impact of land take on the loss of/fragmentation of habitats; • Direct disturbance of transport related activity for flora and fauna, loss of habitats function, disturbance to fauna resulting from noise and artificial light; • Impact of non-native invasive species arriving in imported soil; • Roadside casualties and indirect transport effects (such as runoff and accidental spill from drainage systems associated with transport networks); • Project level effects. 	<ul style="list-style-type: none"> • Ensure that any mitigation measures identified in the Strategic Habitats Regulations Assessment are integrated at the project design stage; • Production of a Construction Environmental Management Plan (CEMP) through the Environmental Impact Assessment process; • Sensitive planning/timing of any construction and maintenance work to help reduce adverse impacts on biodiversity e.g. clearance of vegetation during the winter to avoid bird breeding season; • Provision of species-specific mitigation measures, such as mammal fencing and crossings. Ensure continued connectivity for commuting and foraging protected species using mitigation agreed with statutory consultees; • Incorporation of actions to deliver the Trunk Road Estate Biodiversity Action Plan (BAP) where possible; • Obtain protected species licences and undertake necessary surveys to acquire these licences; • Measures should avoid and reduce any negative effects on biodiversity during construction, maintenance and operation phases; • Produce a Lighting Strategy through the EIA and design processes to avoid and reduce effects on biodiversity features, in particular bats and otters; • Project mitigation should aim to deliver environmental enhancement where possible; • Consider wider-scale enhancement of the Gwent Levels through active

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
		<p>management to benefit notified interests, wider biodiversity and water quality;</p> <ul style="list-style-type: none"> • Encourage methods of winter salting practices, which minimise the impact on biodiversity; • Integrate custom attenuation ponds as ‘Water Treatment Areas’ with due consideration to benefiting biodiversity and landscape. These would be designed to store and dilute runoff in-combination with treatment via a reedbed filtration system prior to release to local watercourses. Any water released from drainage systems and attenuation ponds would be required to meet the requirements of the Water Framework Directive and SSSI requirements; • Removal of protected species from scheme footprints and relocation to alternative areas prior to construction; • Include appropriate monitoring of mitigation measures in consultation with relevant authorities.
Population	<ul style="list-style-type: none"> • Access to key services; • Transport related security; • Community severance from transport; • Project level effects. 	<ul style="list-style-type: none"> • Improve walking and cycling facilities through the complementary measures i.e. provision of cycle-friendly and walking-friendly infrastructure; • Walking and cycling friendly infrastructure should be safe and should address any community severance issues where practicable; • Take into account the results of the Equality Impact Assessment; • Take into account the results of the Health Impact Assessment; • Highway infrastructure options should ensure that severance of footpaths and

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
		other rights of way do not reduce the accessibility of open space and recreation opportunities.
Human Health	<ul style="list-style-type: none"> • Transport related impacts on human access to recreational or open space facilities; • Accidents related to transport; • Respiratory health and improved fitness; • Effects relating to the use of active travel modes; • Project level effects. 	<ul style="list-style-type: none"> • Encouragement of more ‘active’ travel modes through the complementary measures, including walking and cycling, to increase physical fitness and personal health; • Adoption of air quality and noise mitigation measures.
Soil and Geology	<ul style="list-style-type: none"> • Transport effects on soil (loss, sealing, contamination), soil erosion (wind and water), compaction, introduction of noxious weeds in imported soil; • Project level effects. 	<ul style="list-style-type: none"> • Any construction work should follow a code of practice, which minimises adverse effects on soils, including erosion, contamination, degradation, compaction, sealing and loss; • Incorporate Good Practice Guide for Handling Soils into maintenance and construction protocols; • Encourage methods of winter salting practices, which minimise the impact on soils;

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
		<ul style="list-style-type: none"> Construction Environmental Management Plans (CEMP) should ensure that adverse effects on soils are minimised during the construction process and that soils supporting valuable habitats should be reinstated at the end of construction; Undertake a preliminary risk assessment to determine effects on land contamination; Identify where remediation would be required and remediate soils, where required, in accordance with statutory requirements.
Water	<ul style="list-style-type: none"> Transport effects on water quality and water quantity; Changes to hydrological and hydrogeological regimes; Project level effects. 	<ul style="list-style-type: none"> Construction Environmental Management Plans (CEMP) should ensure that adverse impacts on water resources are minimised during the construction process; Consider the implications of climate change on the design, construction and maintenance of the highway and highway structures, taking into account increased rainfall and warmer summer temperatures. For example, new roads should be equipped with appropriate sustainable drainage systems (i.e. SUDS to avoid potential flooding from highway run off and pollution to groundwater and surface water, including the use of interceptors; Integrate custom attenuation ponds as ‘Water Treatment Areas’ with due consideration to benefiting biodiversity and landscape. These would be designed to attenuate and dilute runoff in-combination with treatment via a wetland filtration system prior to release to local watercourses. Water released from drainage systems and attenuation ponds would be managed to meet the requirements of the Water Framework Directive;

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
		<ul style="list-style-type: none"> • Where site compounds are required, locate these away from surface water features and watercourses. Drainage must be design to avoid transfer of potential spillages to surface and groundwater; • Provide better information for the handling of road spillages to ensure that when they do occur, drainage facilities are managed in the most appropriate way; • Encourage methods of winter salting practices, which minimise the impact on water quality; • Particular attention should be paid to possible impacts which could affect the integrity of freshwater and marine European sites designated under the Habitats Directive; • Mitigate potential impacts due to spillages and release of silt; • Develop an emergency pollution incident response plan and ensure correct storage of oil and chemicals and careful refuelling of plant during construction; • Implement Maintenance Environmental Management Plans (MEMP) to avoid adverse impacts and, where possible, deliver environmental gains, such as improvements to water resources; • Undertake a Flood Consequences Assessment at the project level.

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
Material Assets	<ul style="list-style-type: none"> • Levels of use of secondary and recycled aggregates; • Condition of the transport infrastructure; • Project level effects. 	<ul style="list-style-type: none"> • The design and construction of highway infrastructure should consider the implementation of the waste hierarchy and avoid, reduce, reuse and recycle waste through administration of a Waste Management Plan; • Use sustainable construction methods such as reusing or recycling all excavated material on site, where possible, minimising waste; • Import of materials for road construction and structures would be minimised. Local suppliers would be encouraged and local lorry movements minimised. Deliveries would be timed to avoid peak periods on the existing highway network; • Substitute carbon intensive materials with less carbon intensive ones where practicable; • Identify appropriate maintenance procedures which aim to maximise resource and energy efficiency and aim to use sustainability sourced local, recycled and/or secondary materials; • Minimise or prevent movement of materials on local roads through careful programming.
Cultural Heritage	<ul style="list-style-type: none"> • Transport effects on historic sites and landscapes; • Project level effects. 	<ul style="list-style-type: none"> • Use sensitive design and construction techniques in areas of historical importance; • Work in partnership with relevant highways and cultural heritage consultees to avoid and minimise potential impacts; • Adopt design principles for highway works being carried out in areas of

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
		<p>historical importance;</p> <ul style="list-style-type: none"> • Conduct site surveys and recording of the key archaeological features; • Ensure minor works avoid damage to heritage assets; • An Assessment of the Significance of Impacts of Development on Historic Landscape (ASIDOHL2) would be undertaken at project level to further identify effects on heritage landscape and identify detailed mitigation where possible.
Landscape and Townscape	<ul style="list-style-type: none"> • Transport effects on tranquillity and light pollution; • Effects on landscapes and townscapes from transport; • Project level effects. 	<ul style="list-style-type: none"> • Identify measures to integrate schemes into the surrounding landscape and reduce visual impact on properties; • Mitigate effects on the landscape through sensitive scheme design and construction integrating roads sympathetically into the landscape; • Produce a Lighting Strategy through the EIA and design processes to minimise light pollution; • Signage and lighting should, where possible, avoid urbanisation of rural areas. Ideally areas of the scheme across the Gwent Levels would not be lit. Reflective signs should be used in preference to illuminated signs, and visibility splays should be minimised where possible whilst maintaining compliance with motorway design standards; • New planting should link existing planting and enhance the visual appearance of the existing highway. Where trees have been removed on the grounds of their location affecting safety, replacement trees should be planted in an

Indicator	Potential Environmental Effect / Enhancement	Mitigation / Enhancement Measures
		<p>acceptable nearby location;</p> <ul style="list-style-type: none">• Project assessments should determine how the schemes fit into the landscape, and propose measures that will retain, improve and protect characteristic features and landscape patterns such as veteran trees and field boundaries;• Produce a Landscape Strategy through the EIA process detailing monitoring and maintenance periods to ensure the establishment of new planting.

4 How the Opinion of Statutory Consultees, Key Stakeholders and the Public have been taken into Account

4.1 Scoping Report Consultation

The Welsh Government consulted their statutory advisors in Wales and statutory equivalents in England on the scope of the SEA between 9th July 2013 and 16th August 2013; these were as follows:

- Cadw;
- Natural Resources Wales;
- Environment Agency;
- Natural England.

Non-statutory feedback was also received from the Royal Society for the Protection of Birds (RSPB). These comments were considered within the development of the SEA.

Statutory consultee responses to the Scoping Report were taken into account in the development of the Environmental Report. Responses from Natural England and the Environment Agency are discussed in Section 4.4. Detailed consideration of Natural Resources Wales and Cadw responses to the Scoping Report are presented in Appendix A.

4.2 Environmental Report Consultation

Consultation on the draft Plan and its associated assessments commenced on 23rd September 2013 for a 12 week period, ending on 16th December 2013.

4.2.1 Statutory Consultees

Responses to the Environmental Report were received from the following statutory consultees:

- Cadw (response to the draft Plan Consultation Document only);
- Natural Resources Wales; and
- Natural England.

The Environment Agency did not respond to the Environmental Report in line with their initial Scoping Report response indicating that no likely significant effects were anticipated in England; discussed in Section 4.4.

Statutory consultee responses to the Environmental Report were taken into account in finalising the Plan; these are presented in Appendix B. The response from Natural England is discussed in Section 4.4. Detailed consideration of Natural Resources Wales and Cadw responses to the Environmental Report are presented in Appendix C. Table 5 summarises statutory consultee responses and identifies where comments have been addressed.

Table 5: Summary of Statutory Consultee Responses to the Environmental Report.

Statutory Consultee	SEA Environmental Report Response	Where Comments have been Addressed
Cadw	No response received on the Environmental Report. Cadw's comments on the Consultation Document are presented in Appendix B.	Comments taken into account in the development of the Plan. Please see Table 6 and Appendix C for responses to key themes and individual comments respectively.
Environment Agency	No response received. Scoping response indicated no likely significant effects in England.	No action required.
Natural England	Natural England re-confirmed their scoping advice that any effect on protected sites in England would be unlikely; comments presented in Appendix B.	No action required.
Natural Resources Wales	NRW's comments are presented in Appendix B.	Comments taken into account in the development of the Plan. Please see Table 6 and Appendix C for responses to key themes and individual comments respectively.

4.2.2 Key Stakeholders and the Public

1,816 unique respondents participated in the consultation on the M4 Corridor around Newport, with 374 responses to: '*Question 5: Please provide any comments regarding the Strategic Environmental Assessment (SEA) of the draft Plan here*' (Consultation Participation Report, 2014)¹. Due to the volume of responses and the detail provided, the key themes provided by statutory consultees, key stakeholders and the public have been identified and addressed in Table 6; comments provided on the HIA and EqIA have been included where relevant. The key themes have been informed by the Consultation Participation Report, which has reviewed and analysed comments by all respondents. The relevant common themes to SEA are summarised as follows:

- The SEA process;
- Level of detail provided or required;
- Consideration of alternatives;
- Mitigation and monitoring; and
- Topic specific queries.

Table 6: Summary of how Consultation Responses from Statutory Consultees, Key Stakeholders and the Public have been Taken into Account in the Decision to Adopt the Plan

Key Themes and Topics	How Comments have been Addressed
The SEA Process	
The SEA Environmental Report is Too Long and Complex; a Non-Technical Summary should be Provided.	A non-technical summary of the SEA Environmental Report was included as part of the draft Plan consultation and continues to be available through the M4 Corridor around Newport website, www.m4newport.com . Copies were also made available to attendees during public exhibitions.
Consideration of Non-Statutory Responses during SEA Scoping.	Relevant comments and suggestions made at the scoping stage were integrated into the preparation of the draft Plan and the SEA Environmental Report. The SEA Regulations require that consultation on the scoping report is undertaken with statutory consultees; hence only statutory consultee responses were included within the Environmental Report. Any non-statutory responses received as part of the scoping process were considered in the preparation of the SEA Environmental Report. The Environmental Report outlined how all scoping responses were considered.
Different Assessment Conclusions between the M4 CEM Development Work and the M4 Corridor around Newport	SEA is an iterative process. The 2012 SEA development work to inform a draft Plan identified potential major adverse effects on certain receptors. As required by the SEA process mitigation was identified that could avoid or reduce potential negative effects. These measures were integrated into the SEA Environmental Report (2013); consequently certain topics concluded reduced environmental effects in response to the additional mitigation measures that would be integrated into the project design.
Different Assessment Conclusions between the M4 Corridor around Newport WelTAG Stage 1 (Strategic Level)	The M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Appraisal and the SEA Environmental Report consider the environmental effects of potential alternatives against different criteria. The key difference between the two assessments is the consideration of mitigation measures; SEA develops and considers mitigation measures to avoid, reduce and offset effects, whilst WelTAG considers construction effects in the absence of mitigation. This leads to a significant difference in conclusions on environmental effects. WelTAG, as a precursor to SEA, identifies initial environmental concerns that are then considered in SEA, if appropriate, where

Key Themes and Topics	How Comments have been Addressed
Appraisal and the SEA Environmental Report	<p>measures are integrated in an iterative fashion to mitigate effects where possible.</p> <p>Further consideration of potential environmental effects and possible mitigation of any adverse effects would follow at project level EIA stage.</p>
<p>The Assessment is Unbalanced. Responses included Comments Suggesting that the Assessment was Biased towards Economic Aspects, Social Aspects and Environmental Aspects</p> <p>The Assessment is Not Compliant with Welsh Government Policies regarding Environmental Protection and Sustainable Development</p>	<p>Sustainability principles have been central to the development and appraisal of the M4 Corridor around Newport. The aims and objectives for the M4 Corridor around Newport have been shaped by the M4 CEM engagement and public consultation process, where stakeholders and the public have agreed with the identified ‘goals’ (transport planning objectives) that address a range of capacity, safety, resilience and sustainable development problems experienced on the M4 Corridor around Newport.</p> <p>A coordinated assessment of a range of potential measures was undertaken through the M4 CEM WelTAG Stage 1 (Strategy Level) Report and M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Report. WelTAG includes assessment against the three-pillars of sustainability (economic, social and environmental).</p> <p>It is essential that the requirements of all three pillars are balanced and that no one pillar is prioritised. The WelTAG process provides a framework of sustainability that has been applied to the development of the draft Plan and continued through the SEA process. Consequently, the needs of people and communities are not prioritised over environmental concerns; conversely, environmental concerns require balancing against economic and social concerns.</p> <p>Furthermore, the same assessment criteria and level of detail was applied to the preferred strategy, the Reasonable Alternatives and the Do-Minimum Scenario, in the WelTAG appraisals and in the SEA Environmental Report. This also involved the consideration of a range of relevant policies, plans and programmes as part of the assessment process; of which these included those that focus on, or are shaped by sustainability principles. These processes provide balanced assessments and give equal consideration to each option.</p>

Key Themes and Topics	How Comments have been Addressed
Level of Detail Provided or Required	
<p>Detailed Assessments and Surveys are Required to Support the Assessment</p> <p>Construction Techniques and Design Details are Required</p>	<p>The SEA Environmental Report was undertaken in accordance with current guidance: A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, 2005)¹¹.</p> <p>The level of detail available within the draft Plan generally determines the extent of assessment in the SEA. In high level plans, qualitative predictions are valid and appropriate and are often expressed in easily understood terms such as ‘getting better or worse’ or a scale from ++ (very positive) to – – (very negative)¹¹.</p> <p>The M4 Corridor around Newport draft Plan is high level, lacking the requisite detail to undertake comprehensive scheme assessments; consequently, only very high level assessment is possible. For example information such as areas of land-take, resource requirements or the design of bridge structures has not been developed in any detail.</p> <p>It is not possible to provide detailed design or construction techniques at the strategic stage of SEA. This information will be available during the project stage, which will provide an additional opportunity for public consultation on the EIA Environmental Statement, with prior input from statutory consultees on the EIA Scoping Report. The EIA Environmental Statement will contain all the necessary detail to assess the environmental effects of the project.</p> <p>Scheme design is required to develop junction strategies. This was noted within the Environmental Report assessments within relevant assessments; e.g. air quality, which considered that changes in traffic flows for different locations of junctions would not be sufficient to lead to a significant cumulative effect.</p>
<p>Traffic Data is Not Fit-for-Purpose</p>	<p>The following reiterates what traffic data was used, the source of the data and information to support the assumptions.</p> <p>The M4 Corridor around Newport Consultation Document¹² shows observed and forecast traffic levels on the existing M4. This shows substantial growth occurring in the late 1990s, followed by a generally flat profile prior to the economic downturn in 2007/2008, which was further affected by the major road works on the M4 in 2009 and 2010. Following the completion of these road works, traffic volumes have risen back to around the 2005 pre</p>

¹¹ ODPM, 2005. *A Practical Guide to the Strategic Environmental Assessment Directive*. Office of the Deputy Prime Minister: London.

¹² Figures 4 and 5, draft Plan Consultation Document, available at www.m4newport.com.

Key Themes and Topics	How Comments have been Addressed
	<p>global recession level. ‘TEMPRO’ (Trip End Model Presentation Program) forecasts show growth from 2011 onwards.</p> <p>Forecasts are made in accordance with the Welsh Government WelTAG and Department for Transport WebTAG guidance¹³. Calculation methodology is explained as follows.</p> <p>Traffic surveys were carried out between March and May 2012 to enable comparison with forecast traffic flows and update the M4 traffic model; this ensured the assessment was representative of up-to-date traffic patterns.</p> <p>The M4 traffic model was validated using the 2012 information. Further information on the traffic model can be found in the ‘M4 Corridor, Newport, Local Model Validation Report (LMVR), Draft 1’, November 2012¹⁴.</p> <p>Traffic forecasts were prepared for the then anticipated opening year of the proposed M4 Corridor around Newport Options in 2020 and the design year of 2035 as required by the Design Manual for Roads and Bridges²⁷.</p> <p>Car trips were factored using the Department for Transport’s National Trip End Model (NTEM), as set out in the TEMPRO version 6.2 program. The growth in goods vehicle trips, both light and heavy vehicles, was based on the forecasts contained in the National Transport Model produced by the Department for Transport. Variable demand modelling has been deployed using DIADEM (Dynamic Integrated Assignment and Demand Modelling) to produce the model forecasts, in accordance with WebTAG unit 3.10 advice. It should be noted that traffic forecasts at this strategic stage of option assessment are based on a number of assumptions. These assumptions are integral to the nationally available datasets (e.g. NTEM) and comply with the requirements around uncertainty provided by national guidance (WebTAG)¹⁵. More details of such assumptions are documented in the “New M4 Project”, Magor to Castleton, Traffic Forecasting Report’, Arup, November 2012, which is available at</p>

¹³ see www.dft.gov.uk/webtag

¹⁴ LMVR available at www.m4cem.com.

¹⁵ Transport Analysis Guidance, The Treatment of Uncertainty in Forecasting, TAG Unit 3.15.5, Department for Transport, April 2011

Key Themes and Topics	How Comments have been Addressed
	<p>www.m4newport.com.</p> <p>With regard to recent and future traffic forecasts, recent research¹⁶, led by Professor Peter Jones at University College London and reported in the Paper ‘On the Move’¹⁶, included the following quote which is relevant to a strategic road like the M4:</p> <p><i>‘...by 2040 traffic on strategic roads will have grown by 46%, based upon central estimates of population growth, economic growth and the decline in the cost of motoring. In situations where the economy grows faster than expected, where the costs of motoring fall and population grows more quickly, this could mean traffic could grow by as much as 72%. If economic forecasts were downgraded, if population growth stagnated and if motoring technology did not develop as fast as predicted, the increase would be smaller. However, the minimum forecast increase, 24%, is still a substantial rise on current levels.’</i></p> <p>Furthermore, in July 2013, the Department for Transport published its command paper entitled ‘Action for roads: a network for the 21st century’¹⁷. The following is a quote from that the paper:</p> <p><i>‘Even under our lowest growth forecasts we would expect traffic growth to cause major increases in congestion, greater delays and more unpredictable journeys. Without action, growing demand will place unsustainable pressure on our roads, constraining the economy, limiting our personal mobility and forcing us to spend more time stuck in traffic. This will mean more pollution and more frustration for motorists...’</i></p> <p>Furthermore, traffic data will continue to be updated and appraised to support scheme level assessment to support the EIA.</p>
<p>The Assessment is Focussed on Too Small an Area and Does Not Address Long-Term Effects</p>	<p>The M4 Corridor around Newport forms part of the National Transport Plan; therefore has previously received high level assessment at a national scale. Furthermore, the M4 Corridor around Newport strategic assessments consider effects within a zone of influence relevant to each topic. Potential effects on European sites were identified within a 30km zone of influence; this zone of influence was subject to consultation with Natural Resources Wales.</p> <p>Long-term effects were considered within the SEA Environmental Report assessment, where relevant. Certainty</p>

¹⁶ On the Move, December 2012, written for the RAC Foundation, the Office of Rail Regulation, Independent Transport Commission and Transport Scotland by a research team led by Professor Peter Jones at University College London.

¹⁷ Action for Roads: A network for the 21st Century, Department for Transport, July 2013 (Cm 8679).

Key Themes and Topics	How Comments have been Addressed
	<p>in long-term effects declines with predictions further into the future, such that trends are assumed and used as a basis for prediction.</p> <p>The Do-Minimum Scenario and Red Route Reasonable Alternative performed poorly against the required objectives, since traffic volumes would reach capacity much earlier than the Black Route and Purple Route options; this was identified as contributing to increased air quality, greenhouse gas and noise effects, potentially across a wider area, in the longer term. The assessment identifies that the Plan would address capacity, resilience and safety issues further into the long-term.</p> <p>The longer term consideration of biodiversity acknowledges the requirements of EIA at the project level to avoid, reduce and offset any negative effects, enhance positive effects and aim to provide a net benefit. Acidification effects of traffic emissions on biodiversity and soils are considered in the long-term, acknowledging that traffic volume will increase into the future. This applies to all scenarios but will likely be mitigated by technological improvements, and in the case of the Plan, reduced congestion will lead to benefits sooner. Considering climate change effects it was recognised that the Plan could integrate climate change adaptation measures whereas this would be difficult under the Do Minimum Scenario. In the long-term the Plan could better adapt to climate change with benefits for flood risk and water quality.</p>
Consideration of Alternatives	
Selection of Alternatives and Reasonable Alternatives	<p>Identification, selection and assessment of alternatives was undertaken through the Welsh Government's WelTAG Stage 1 (Strategy Level) Appraisal; an appropriate and recognised process for the appraisal of transport strategies or schemes. This process gives equal consideration to all relevant alternatives.</p> <p>WelTAG Stage 1 (Strategy Level) Appraisal was supported by inclusive extensive development work, including option workbooks which are publically available on project websites (www.m4cem.com and www.m4newport.com). This work is outlined and cross-referenced throughout the WelTAG and SEA documents, in order to highlight how options have been identified, selected and appraised.</p> <p><i>Development Work to Inform a draft Plan - M4 Corridor Enhancement Measures (CEM) WelTAG Stage 1 (Strategy Level) Appraisal¹⁸ (2012)</i></p>

¹⁸ Welsh Government. 2012. M4 Corridor Enhancement Measures: WelTAG Stage 1 (Strategy Level) Appraisal.

Key Themes and Topics	How Comments have been Addressed
	<p>The M4 CEM development work builds on historic appraisal undertaken since the early 1990s for the ‘M4 Relief Road’ and ‘New M4 Project’, as outlined in the relevant WelTAG reports. Section 3.1 of the M4 CEM WelTAG Report explains how having established the problems and the need to tackle them, the Welsh Government has involved others in exploring a very wide range of possible ways of solving these problems and of delivering the goals of the M4 CEM Strategy, and that a long list of possible solutions was explored.</p> <p>The appraisal process identified that an additional road to the south of Newport was the solution that best addressed the problems and transport planning objectives, and therefore was the option taken forward from the M4 CEM Programme into the draft Plan as a ‘Reasonable Alternative’ for assessment in the M4 Corridor around Newport WelTAG Report. Highway, walking and cycling measures, identified as being ‘common’ or ‘complementary’ measures during development work were also progressed to the draft Plan.</p> <p>To meet the requirements of a ‘Reasonable Alternative’, appraisal must demonstrate that the alternative could reasonably deliver the objectives of the draft Plan. It is the responsibility of the Welsh Government, as the Responsible Authority, to determine which options will reasonably deliver the objectives of the draft Plan. The M4 CEM WelTAG Report then outlines the components of a potential strategy, as informed by the development work that involved others in identifying, selecting and appraising options.</p> <p><i>M4 Corridor around Newport - WelTAG Stage 1 (Strategy Level) Appraisal⁸</i></p> <p>The M4 Corridor around Newport WelTAG Report explains how changes to affordability led to the decision to further reconsider solutions to resolve capacity issues on the M4. This led to the inclusion of new motorway alternatives that were subject to the WelTAG Stage 1 (Strategy Level) Appraisal process to determine their validity as ‘Reasonable Alternatives’. The conclusions of the M4 Corridor around Newport WelTAG Report identified the ‘Reasonable Alternatives’ for assessment in the SEA Environmental Report.</p> <p>Thus, in order to inform the strategy for the M4 Corridor around Newport, appraisal has been undertaken of options that include M4 CEM short-listed measures, provision of new motorway capacity routed to the south of Newport which could potentially be unrestrained by funding, public transport and complementary measures. The conclusion of this process identified and appraised the ‘Reasonable Alternatives’ that would meet the objectives of the draft Plan, as published in September 2013. The WelTAG process, as the appropriate process for identifying, selecting and appraising options, outlined the reasons for doing so, and why certain alternatives were not recommended for further appraisal.</p> <p>In accordance with the SEA Regulations, alternatives were rejected where they did not meet the objectives of the</p>

Key Themes and Topics	How Comments have been Addressed
	<p>draft Plan. The reasons for selecting or discarding alternatives during development work as part of the preparation of the draft Plan is provided in a series of workshop reports, workbooks and WelTAG appraisal. This development work is referenced in the M4 Corridor around Newport Consultation Participation Report and is publically available via the aforementioned project websites.</p> <p><i>M4 Corridor around Newport – Strategic Environmental Assessment (SEA)</i></p> <p>The Reasonable Alternatives to be assessed in the SEA Environmental Report were proposed within the SEA Scoping Report and issued to statutory consultees for consultation. No comments were received from the statutory consultees indicating that additional alternatives should be considered or that the proposed alternatives were not valid. Consequently, the SEA Environmental Report assessed the draft Plan, the two agreed Reasonable Alternatives and the Do Minimum Scenario.</p> <p>Section 2.6.1 of the M4 Corridor around Newport SEA Environmental Report outlines the process by which the alternatives were identified and refined in the M4 Corridor Enhancement Measures (CEM) SEA development work (2012) to inform a draft Plan. Section 2.6.2 of the M4 Corridor around Newport SEA Environmental Report outlines the reasons for expanding on the chosen alternative to include motorway options. This work was informed by the M4 CEM and M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) reports to which references and hyperlinks to the publically available reports were included.</p>
Consideration of M4 CEM Options including Public Transport Measures	<p>Potential alternatives were appraised in the M4 CEM development work to inform a draft Plan. This considered a wide range of alternatives that could potentially deliver the objectives of the draft Plan, which were developed through stakeholder engagement, as outlined in the M4 CEM WelTAG report and other M4 CEM documents.</p> <p>The M4 CEM Programme led to the consideration of a long list of options, as developed through stakeholder engagement, which was sifted to consider public transport measures, widening of the existing M4 between Junctions 24 and 29 through inclusion of a new tunnel at Brynglas, options to upgrade the A48 and Southern Distributor Road (SDR) and an additional road to the south of Newport.</p> <p>The outcome of this study was that a package of measures, of which the main element is an additional road to the south of Newport, could reasonably meet the objectives of the draft Plan (M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Appraisal; Section 6) and was the option that attracted the most support during a public consultation between March and July 2012 (see M4 CEM Participation Report, 2012). Thus the only alternative that could be considered a ‘Reasonable Alternative’, in accordance with the SEA Regulations, was a new road to</p>

Key Themes and Topics	How Comments have been Addressed
	<p>the south of Newport integrating public transport enhancement and ‘common measures’ (termed ‘complementary measures’ in the M4 Corridor around Newport), including walking and cycling initiatives.</p> <p>The M4 CEM WelTAG Stage 1 (Strategy Level) Report describes why public transport measures were not considered separately in the M4 Corridor around Newport draft Plan¹⁹. The report cross references an M4 CEM Public Transport Overview study (2012) and states that, for the Newport area, an approximate 50% increase in the use of public transport, with an increased mode-share of approximately 11% (compared to a present-day mode-share of around 7% in Newport) could see a reduction of less than 3% of traffic volumes on the M4 around Newport (M4 CEM WelTAG Stage 1 (Strategy Level) Report). The M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Report and M4 CEM WelTAG Stage 1 (Strategy Level) Report explains in more detail why public transport measures are progressed separately and not as part of the draft Plan for the M4 Corridor around Newport. These documents cross reference where further information is provided; within the M4 CEM Public Transport Overview Update (2013), available at www.m4cem.com, which also considered the potential impacts of the potential Cardiff Capital Region Metro and rail electrification on the conclusions of the M4 CEM Public Transport Overview study (2012).</p> <p>In conclusion, public transport measures, upgrading the A48 and SDR and widening of the M4 are considered not able to address the problems and achieve the objectives for the M4 Corridor around Newport as effectively as an additional road to the south of Newport could.</p>
Alternatives Suggested During Consultation (including a measure described by some respondents as the ‘Blue Route’)	<p>A number of alternatives were suggested during consultation on the draft Plan and SEA Environmental Report. A strategic appraisal of these alternatives, using the same assessment criteria as the identification of Reasonable Alternatives, is presented in the following report: Strategic Appraisal of Alternatives Considered during draft Plan Consultation²⁰; the report is available on the project website www.m4newport.com with a summary presented in Section 5.1 of this statement. Suggestions included the following:</p> <ul style="list-style-type: none"> • grade-separated A48 Southern Distributor Road (SDR) and upgraded A4810 Steelworks Access Road (SAR) (also known as the Blue Route); • a motorway to the north of Newport;

¹⁹ Section 11.2

²⁰ M4 Corridor around Newport Strategic Appraisal of Alternatives Considered during draft Plan Consultation Report (2014). Available at www.m4newport.com

Key Themes and Topics	How Comments have been Addressed
	<ul style="list-style-type: none"> • alignment of the motorway to the south of Magor; • alignment of the motorway to the west of Wilcrick Hill; • a tunnel under the River Usk; • a barrage across the River Usk; • public transport improvements. <p>The majority of comments received on this topic related to the grade-separated A48 Southern Distributor Road (SDR) and upgraded A4810 Steelworks Access Road (SAR) (also known as the Blue Route).</p> <p>On 9 December 2013, a copy of a published Blue Route paper entitled ‘The Blue Route ~ A cost effective solution to relieving M4 congestion around Newport’ was sent to the Welsh Minister for Economy, Science and Transport Edwina Hart, MBE CStJ AM by Wildlife Trusts Wales, signed jointly by representatives of Wildlife Trusts Wales, FoE Cymru, Gwent Wildlife Trust and RSPB Cymru. The paper was authored by Professor Stuart Cole and published by the Institute of Welsh Affairs. The Blue Route was published one week before the public consultation on the draft Plan was to close; consequently, it was not possible to assess the Blue Route as part of the SEA. However, aspects of the Blue Route were identified and assessed as alternatives during the inclusive M4 CEM development work to inform a draft Plan. This work with stakeholders built on previous development work including the option to upgrade the A48 Southern Distributor Road (SDR) to a ‘Newport Expressway’ that was first considered by the Welsh Government in 2010 in the report ‘M4 CEM Strategy, Appraisal and Monitoring’²¹.</p> <p>The M4 CEM consultation in 2012 considered two options to upgrade the A48 Southern Distributor Road (SDR); neither option was able to deliver the objectives of the draft Plan, and as such could not be considered as ‘Reasonable Alternatives’ for consideration within the SEA. The M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) report and M4 CEM WelTAG Stage 1 (Strategy Level) report explains in more detail why options to upgrade the A48 SDR did not form part of the draft Plan for the M4 Corridor around Newport; this is outlined in Section 2.6 of the SEA Environmental Report.</p> <p>Taking into account the level of responses that identified the Blue Route as an alternative during the draft Plan</p>

²¹ M4 CEM Draft Strategy, Appraisal and Monitoring Report (May 2010)

Key Themes and Topics	How Comments have been Addressed
	<p>consultation, a ‘Strategic Appraisal of Alternatives Considered during draft Plan Consultation Report’²⁰ was undertaken and concluded that the Blue Route option would also incur environmental effects, notably on protected species, the Gwent Levels SSSI’s and the River Usk SAC. The alignment of the Blue Route through the centre of Newport would incur greater social and economic impacts than a highway to the south of Newport and furthermore would not meet the objectives of the draft Plan; consequently, Welsh Government as the responsible authority, do not consider that the Blue Route option constitutes a ‘Reasonable Alternative’.</p> <p>None of the suggested alternatives appraised within the Strategic Appraisal of Alternatives Considered during draft Plan Consultation Report²⁰ were considered to be able to deliver the objectives of the draft Plan, and as such are not considered to be Reasonable Alternatives.</p>
Mitigation and Monitoring	
Proposed Mitigation may not be Possible or Effective	<p>Mitigation measures have been identified based on the best knowledge at the time of this report given the level of detail that is available in the draft Plan and takes into account DMRB guidance and best practice from previous schemes. Furthermore, many of the mitigation measures proposed in the Environmental Report include standard techniques recommended by regulators and industry best practice. For example, the Environment Agency’s Pollution Prevention Guidelines (PPG), or CIRIA²² guidance on the avoidance and reduction of environmental effects. Such mitigation is considered to be plainly established and uncontroversial; these will be integrated into the project design and implemented under a Construction Environmental Management Plan (CEMP).</p>
<p>Environmental issues would be Minimal and Mitigation Measures would be Successful in Addressing any Effects</p> <p>The Potential Effects on the Gwent Levels and the SSSI’s have</p>	<p>Environmental effects have been identified through the SEA Environmental Report. Where feasible at the strategic stage of the SEA, mitigation has been implemented to avoid, reduce and offset identified potential effects.</p> <p>Detailed assessment will be undertaken during EIA at project development. This will consider environmental effects throughout the process and identify additional mitigation measures where required. Consequently, the consideration of environmental effects will contribute in an iterative fashion to the development of the project level design with the aim of avoiding effects and reducing and offsetting unavoidable effects where this is not possible. The EIA will aim to ensure there is no net loss of habitat or species populations through the</p>

²² CIRIA: Construction Industry Research and Information Association

Key Themes and Topics	How Comments have been Addressed
been Exaggerated and can be Easily Mitigated	incorporation of mitigation and enhancement measures.
Topic Specific Queries	
Clarification of Effects on Air Quality and Greenhouse Gas Emissions	<p>SEA requires an indication of whether a receptor will be negatively affected, positively affected or remain relatively neutral. This relates to the fact that there is often limited detail available at the strategic level; detailed assessment is only possible at the project level. The Plan commits to detailed air quality monitoring, assessment and mitigation throughout the development of the project as the level of detail increases.</p> <p>As set out in DMRB²⁷, it is widely accepted that beyond 200m, the contribution of vehicle emissions to air quality is insignificant. This applies both to properties and to designated sites.</p> <p><i>Shift of Traffic Volume away from Residential Areas</i></p> <p>Proximity of residential areas to the existing M4 around Newport has directly led to localities failing national air quality objectives, with subsequent designations of AQMAs²³. Adoption of the Plan will lead to a significant volume of traffic being diverted away from the existing M4 onto the new highway^{18, 24}; leading to significant air quality improvements around the existing M4.</p> <p>Conversely, adoption of the Plan will lead to a reduction in air quality around the new alignment; although based on expert judgement this is unlikely to exceed national air quality standards considering the baseline conditions. Detailed air quality assessments during project level EIA will determine the effects once the relevant details are available.</p> <p>Significantly fewer residential properties are located within the range of influence of the Plan alignment compared to the existing M4. Approximately 4,000 residential receptors are present within 200m of the existing M4, compared to approximately 400 residential receptors along the Plan alignment. Properties located along the existing M4 are predicted to benefit from air quality improvements, while the fewer houses along the Plan alignment are likely to experience a minor reduction in air quality (but are anticipated to remain within national</p>

²³ Air Quality Management Areas.²⁴ Section 5.5

Key Themes and Topics	How Comments have been Addressed
	<p>air quality standards). Detailed project level assessment will confirm effects on all relevant receptors.</p> <p>This significant benefit to residents along the existing M4 is likely to result in the removal of M4-related AQMA as the exceedence of national air quality standards is removed by the reduction in traffic and improvements in vehicle technologies in future years with the introduction of tighter emission controls. Furthermore, re-classification of the existing M4 provides additional scope for traffic management which could further reduce traffic related air quality effects along the existing M4 enhancing the benefit to residents along the existing M4.</p> <p>Other characteristics of the urban environment can increase the impact of traffic emissions on air quality. For example, highways located in hollows due to local topography, or the presence of high buildings on either side of the road, creates a 'canyon effect'. This reduces the dispersion of the emitted pollutants from traffic sources and can lead to significantly higher concentrations of local air contaminants (EEA, 2012)²⁵. The existing M4 around Newport is susceptible to this effect due to its topography; whereas, the open landscape to the south of Newport would enhance dispersion and curb the build-up of emissions.</p> <p><i>Topography</i></p> <p>Road gradient is a key factor affecting engine load that increases the amount of pollutant emitted (DEFRA, 1997)²⁶. The existing M4 follows a winding and undulating alignment (WG, 2013)⁸; consequently, the topography and alignment of the existing M4 promotes poorer air quality around Newport. The corridor adopted by the Plan would provide a flatter and straighter alignment that would encourage efficient engine loads, promoting improved air quality relative to the existing M4; particularly in relation to HGV emissions.</p> <p><i>Congestion and Flow</i></p> <p>The existing M4 around Newport is often congested, especially during weekday peak periods, resulting in slow and unreliable journey times and stop-start conditions, with incidents frequently causing delays (Welsh Government, 2013)⁸. 'Slow, stop and start' congested urban traffic conditions can result in higher emissions per kilometre compared to free-flowing longer journeys. This is a consequence of higher fuel consumption and less efficient performance of exhaust emission abatement systems. Measures that reduce traffic congestion may</p>

²⁵ European Environment Agency. (2012). The Contribution of Transport to Air Quality. TERM 2012: Transport Indicators Tracking Progress Towards Environmental Targets in Europe.

²⁶ DEFRA. 1997. National Atmospheric Emissions Inventory. Emissions Report, Road Transport.

Key Themes and Topics	How Comments have been Addressed
	<p>therefore benefit air quality in the immediate area.</p> <p>Evidence has shown that the highest vehicle emissions tend to occur at low vehicle speeds (e.g. in congested traffic)²⁷. Although emissions do rise at high speeds encountered on motorways this is not to the same degree as at low traffic speeds²⁷. Furthermore, emissions under ‘start-stop’ driving conditions tend to be higher than those when vehicles are driven more smoothly²⁷.</p> <p><i>Complementary Measures</i></p> <p>Vehicles engines do not operate efficiently during short distance commutes, promoting poor air quality. Tests on catalyst-equipped cars have shown that emissions of carbon monoxide and hydrocarbons can increase by an order of magnitude during cold starting relative to emissions during thermally stable operation²⁷. Consequently, modal shift to walking or cycling over short distances, up to three miles, can make improvements to local air quality in residential areas. The Plan would promote the use of cycling and walking as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure. Re-classification of the existing M4 will also provide opportunities to promote walking and cycling infrastructure along this route. Whereas this is prohibited under motorway regulations, it can be incorporated as part of the trunk road network following re-classification.</p> <p><i>Construction</i></p> <p>It is not possible to determine the effects of construction on local air quality at the strategic stage; a detailed assessment will be conducted during project level assessment and all applicable mitigation will be integrated into the project design. It is likely that construction will have a temporary minor adverse effect on local air quality; however, effects will be mitigated to avoid and reduce effects where possible.</p> <p><i>Summary</i></p> <p>Overall, there is likely to be a positive effect on air quality and a significant benefit to residences along the existing M4 with potential declassification of AQMAs. Reduced congestion, a straighter and flatter route encouraging better engine efficiency, greater dispersion ability, local benefits from improved walking and cycling infrastructure discouraging cold-start, short-distance car use and greater scope for traffic management to target</p>

²⁷ Department for Transport. 2007. Design Manual for Roads and Bridges (DMRB).

Key Themes and Topics	How Comments have been Addressed
	<p>further reductions in emissions on a re-classified M4, will all contribute to improved air quality around Newport.</p> <p>Further detailed assessments and monitoring will be undertaken to inform project level EIA assessment as the level of available detail increases. Where appropriate, mitigation will be integrated into the scheme to further reduce any adverse effects or to enhance positive effects.</p>
Clarification of Effects on Pollutant Deposition	<p>Comments were received requesting assessment of nitrogen deposition along the proposed routes. At the strategic stage of the SEA it is not possible to ascertain deposition rates in the vicinity of the proposed route as insufficient detail is available. An assessment would require detailed traffic modelling and a defined route with a finalised design.</p> <p>As set out in DMRB²⁷, it is widely accepted that beyond 200m, the contribution of vehicle emissions to air quality is insignificant. This applies both to properties and to designated sites.</p> <p>Six designated sites are present within 200m of the route corridor that could potentially be affected by changes in air quality and pollutant deposition. Four of these sites form part of the Gwent Levels SSSI network (Redwick and Llandeenny SSSI, Whitson SSSI, Nash and Goldcliff SSSI and St. Brides SSSI). The Air Pollution Information Service (APIS) does not categorise open standing water, such as the reens of the Gwent Levels, as sensitive habitats; consequently, there is no critical load data available for assessment. Any subsequent assessment will be limited to the improved grassland habitat; no SSSI features are associated with this habitat. Where no critical load is presented in APIS, it is generally considered that such habitats are not sensitive to nitrogen deposition. Consequently, there is not predicted to be a significant effect on the Gwent Levels SSSI network from nitrogen deposition. The effect of nitrogen deposition on saltmarsh of the Lower Usk SSSI will be considered during project level EIA assessment. The River Usk SAC would not require assessment, as the relevant features are as associated with marine habitat, which is not sensitive to nitrogen deposition²⁸.</p> <p>Detailed assessments will be undertaken to inform the subsequent EIA. Thresholds will be agreed with Natural Resources Wales to ensure that negative effects do not occur.</p>

²⁸ Air Pollution Information System (APIS); <http://www.apis.ac.uk/>

Key Themes and Topics	How Comments have been Addressed
Clarification of Effects on Biodiversity	<p>The Plan achieves a balance between an alignment far enough to the south of the Newport urban area to reduce effects on the Newport population whilst far enough north to reduce effects on the Gwent Levels SSSI network. Furthermore, the Plan aligns with existing development as far as possible to reduce fragmentation effects.</p> <p>Many respondents provided comments indicating that a new highway would cause fragmentation, preventing protected species' movements beyond the structure. The Plan commits to mitigation to avoid such effects through the incorporation of underpasses and overpasses as required. Details on such structures require project level details and extensive survey data which will be implemented at project level through EIA. Once the detailed baseline of protected species has been determined species specific mitigation will be integrated into the project to maintain connectivity.</p> <p>Noise and vibration effects from construction around the River Usk SAC and SSSI, and the Severn Estuary European Marine Site, have been assessed in the Strategic Habitats Regulations Assessment². That strategic-level assessment considers noise and vibration effects against the conservation objectives of the relevant European sites. Table 16: Biodiversity of the Environmental Report notes the conclusion of the report that there would be no significant adverse effect on the integrity of European Sites. The Plan commits to assessing the effect of noise and vibration effects on wider biodiversity during project level EIA, and HRA as required.</p> <p>A selection of mitigation measures has been included within the strategic assessment; these measures will avoid, reduce and offset adverse effects, or enhance positive effects. Mitigation measures have been identified based on the best knowledge at the time of this report given the level of detail that is available in the draft Plan and takes into account DMRB guidance and best practice from previous schemes. Mitigation measures considered in this assessment are those which are plainly established and uncontroversial including those aimed at maintaining existing hydrological connections and protecting water quality and quantity.</p> <p>Construction would be carried out in accordance with guidance outlined within CIRIA best practice guidance and the Environment Agency (EA) Pollution Prevention Guidelines (PPGs) such as:</p> <ul style="list-style-type: none"> • PPG1 General Guide to the Prevention of Pollution; • PPG5 Works and Maintenance in or near water; • PPG6 Working at Construction and Demolition Sites. <p>Avoidance and mitigation measures are identified which would ensure that the potential adverse effects (whether</p>

Key Themes and Topics	How Comments have been Addressed
	from construction or operation of any scheme) identified would be avoided or mitigated. These measures would be rigorously applied during the design and delivery of any scheme with advice from NRW.
Clarification of Effects on Noise and Vibration	<p>A detailed assessment of noise and vibration effects is not possible at the strategic stage. At project level, once a finalised alignment and design is available, a detailed assessment of noise and vibration effects will be undertaken.</p> <p>With respect to residential receptors, there are significantly fewer residential properties within the vicinity of the Plan alignment compared to the existing M4; approximately 4,000 residential receptors are present within 200m of the existing M4 compared to approximately 400 residential receptors along the Plan alignment. Properties located along the existing M4 are predicted to experience positive changes, in addition to some residents of Magor and Undy, while some of the fewer houses along the Plan alignment are likely to experience negative changes; however, specific mitigation would be applied to minimise any effects. Detailed project level assessment will confirm effects on all relevant receptors.</p>
Clarification of Effects on Public Health	<p>Public health is considered in a Health Impact Assessment (HIA) of the Plan²⁹. This has been informed by a HIA of the draft Plan³⁰, which was included in the public consultation and considered how the health and well-being of a population may be affected by the draft Plan against a range of assessment criteria. The HIA considers environmental effects of the preferred strategy, the Reasonable Alternatives and the Do-Minimum Scenario. Table 17: Population and Table 18: Human Health within the Environmental Report references the HIA report and provides a summary of this assessment.</p> <p>In summary, the HIA concluded that the Plan would be expected to provide positive impacts on the population and health, whereas without the Plan the current situation would worsen.</p>
Consideration of Climate Change	Climate change adaptation proposals were integrated into the SEA assessment; these were identified in Table 14: Climatic Factors (Ensure that effective adaptation measures to climate change are in place) of the SEA

²⁹ M4 Corridor around Newport Plan Health Impact Assessment (2014)

³⁰ M4 Corridor around Newport draft Plan Health Impact Assessment (2013)

Key Themes and Topics	How Comments have been Addressed
	<p>Environmental Report.</p> <p>At the strategic level it is not possible to undertake a flood consequences assessment due to the lack of detailed scheme design. Once the requisite detail is available at the project level a flood consequences assessment will be undertaken to inform the EIA; including consideration of climate change. The assessment will need to demonstrate that risks have been managed down to an acceptable level and will be undertaken in consultation with NRW.</p>
<p>Clarification of Effects on Water</p>	<p><i>Water Quality</i></p> <p>Land contamination and construction activities present a potential risk to surface water quality; e.g. fuel spills, liquid chemicals or other leachable construction materials. Standard techniques recommended by regulators and industry best practice are considered effective in avoiding or minimising potential effects. For example, the Environment Agency's Pollution Prevention Guidelines (PPG), or the CIRIA³¹ guidance on the avoidance and reduction of environmental effects. Such mitigation is considered to be plainly established and uncontroversial; these will be integrated into the project design and implemented under a Construction Environmental Management Plan (CEMP).</p> <p>A potential risk to groundwater has been identified through construction activities within, or near to, areas of land contamination. Piling or excavation in areas of land contamination may create a pathway for contamination to enter local groundwater. This risk will be minimised during project level assessment by undertaking a Foundation Works Risk Assessment, in consultation with relevant consultees. Furthermore, groundwater in proximity to areas of land contamination that are directly affected by the Plan will be part of project level monitoring arrangements to be agreed with relevant consultees.</p> <p>Risk would be further minimised through sensitive planning at project level, best practice techniques (including PPG, CIRIA, etc.) and effective mitigation secured by a CEMP. Furthermore, the primary risk involving release of land contaminants can be avoided by remediation prior to construction. Detailed assessment will be undertaken at project level, supported by monitoring implemented by the Plan.</p> <p><i>Water Quantity</i></p>

³¹ CIRIA: Construction Industry Research and Information Association

Key Themes and Topics	How Comments have been Addressed
	<p>Water quantity is not considered likely to significantly change. Main watercourses will be culverted where they coincide with the highway, or minor watercourse may be diverted as required. Project level detail will be required to inform this; however, the structure will be ‘permeable’ and permit the passage of water past the structure in a manner to be developed in consultation with NRW. Consequently, water levels should not significantly change, or mitigation would be identified at project level if required.</p> <p>Runoff from the highway will be managed via balancing ponds [water treatment areas], which will attenuate and treat water prior to release into local watercourses. These ponds will be designed to accommodate climate change adaptation such that they will be able to manage extreme rainfall events. Their capacity and design will permit storage and gradual release in periods of high rainfall and provide dilution and treatment of surface water contaminants.</p> <p>At the strategic level there is insufficient detail to adequately evaluate potential changes in water quantity. The Plan commits to ensure compliance with the Water Framework Directive. This requires consideration of all waterbodies, including main rivers, and considers potential changes in water quantity. Full consideration of any changes to the hydrological regime will be considered at project level through the EIA process when the requisite detail is available.</p> <p>Sustainable drainage systems, including soakways, swales, etc., will be implemented by the Plan to encourage infiltration at source. This will help maintain groundwater levels, whilst also minimising excessive runoff into watercourses.</p> <p>Any storage capacity lost from Plan implementation will be offset by new reens engineered to the requisite specifications. Details of reens to be offset will be determined through the project level EIA. Consequently, there will be no loss in water storage capacity within the Gwent Levels.</p> <p>Respondents raised concerns that there would be no continuity of flows in watercourses following development of a highway. Continuity of main watercourses will be maintained through culverted channels or diversion of minor watercourses, where feasible.</p> <p>At the strategic level it is not possible to undertake a flood consequences assessment due to the lack of detailed design. Once the requisite detail is available at the project level a flood consequences assessment will be undertaken to inform the EIA; including consideration of climate change. The assessment will need to demonstrate that risks have been managed down to an acceptable level and will be undertaken in consultation</p>

Key Themes and Topics	How Comments have been Addressed
	<p>with NRW.</p> <p>Comments provided in Natural Resources Wales' consultation response indicate that a new highway to the south of Newport could act as a secondary flood defence, providing additional protection in the event of a failure in the seawall alongside the Severn Estuary.</p>
Clarification of Effects on Land Contamination	<p>Land contamination has been considered within Table 19: Soil and Geology of the Environmental Report; this includes consideration of areas of land contamination identified during the scoping consultation. Detailed assessment is not possible at the strategic stage as the requisite scheme level detail is not available.</p> <p>A preliminary risk assessment to identify potential areas of land contamination will be undertaken during subsequent project level EIA and will inform where any additional detailed investigations are required.</p>
Clarification of Effects on Material Assets	<p>A detailed assessment of material assets, including service infrastructure, is not possible at the strategic stage. At project level, a detailed assessment of material assets will be undertaken where relevant.</p> <p>With respect to housing, there are significantly fewer residential properties within the vicinity of the route corridor compared to the existing M4; approximately 4,000 residential receptors are present within 200m of the existing M4 compared to approximately 400 residential receptors along the Plan alignment. Properties located along the existing M4 will experience positive changes, while the fewer houses along the Plan alignment are likely to experience negative changes; however, air quality for example is predicted to remain within national standards. Detailed project level assessment will confirm the relative effects on all relevant receptors.</p>
The Assessment Underestimates the Positive Visual Effect of any New Route; particularly a New Bridge over the River Usk.	<p>Without project level detail it is not possible to assess any landscape and visual effects; consequently, the Environmental Report is cautious in its assessment. Detailed landscape and visual assessment will be undertaken during the project stage through the EIA process.</p> <p>The perception of a new bridge across the River Usk could provide significant positive effects with the potential to become an iconic structure in Newport lending additional character and notoriety to the Newport landscape. Examples of note include the Queensferry Crossing over the Firth of Forth in Edinburgh, the Millau Viaduct in France and the Eiffel bridge in Porto.</p>

Key Themes and Topics	How Comments have been Addressed
Ancient Woodland	<p>The SEA baseline assessment considered European, national, and locally protected sites. There are no ancient woodland sites in proximity to the proposed route corridor that have been considered of sufficient value to designate as a European site, notify as a nationally important site or protect as a locally important biodiversity resource (Local Nature Reserve (LNR), Site of Importance for Nature Conservation (SINC)). However, small areas of ancient woodland have been identified³² within the vicinity of the Plan alignment.</p> <p>One area of these areas is located at Coedkernew (NGR³³: ST 2716 8404) and is coincident with the proposed route corridor. This area of ancient semi-natural woodland is not listed under the Newport UDP, or Newport's Conservation Strategy (2004), as a protected site or candidate site being considered for protection. Coedkernew is the only area of ancient woodland that would be directly affected by the alignment. The ancient woodland at Coedkernew is relatively small, measuring approximately 0.8 hectares. For context, Natural Resources Wales estimate (2011) that approximately 95,000 hectares of ancient woodland are present in Wales.</p> <p>The area of ancient woodland at Coedkernew is coincident with the route corridor; consequently, mitigation to avoid direct effects on the resource is not possible. Engineering requirements for a motorway are not likely to permit re-alignment of the corridor to avoid the ancient woodland. Condition assessment of the ancient woodland areas will be undertaken during project level EIA.</p>

³² Forestry Commission; Ancient Woodland Inventory 2011.

³³ NGR: Ordnance Survey, National Grid Reference

4.3 Consideration of Alternatives suggested during Consultation

The proposed alternatives to be assessed in the SEA Environmental Report were included within the scoping report; this was issued to statutory consultees for consultation, in accordance with the SEA Regulations. No comments were received from the statutory consultees indicating that additional alternatives should be considered or that the proposed alternatives were not valid. Consequently, the SEA Environmental Report assessed the consulted alternatives; the draft Plan, the two Reasonable Alternatives and the Do Minimum Scenario.

A number of alternative solutions were suggested during consultation on the SEA Environmental Report, and during public engagement exhibitions. These alternatives have been considered in an M4 Corridor around Newport Strategic Appraisal of Alternatives Considered during draft Plan Consultation Report²⁰, to assess alternatives for their applicability as Reasonable Alternatives for assessment in the SEA Environmental Report. The full report on the alternatives is available on the project website at www.m4newport.com.

Suggested alternatives are identified and described in Table 7 below; only the appraisal conclusion is included for brevity. The full appraisal of these alternatives is included in the M4 Corridor around Newport Strategic Appraisal of Alternatives Considered during draft Plan Consultation report²⁰.

None of the alternatives suggested during consultation met the requirements to be considered as Reasonable Alternatives for assessment in an Environmental Report; i.e. that they could reasonably deliver the objectives of the draft Plan.

Table 7: Alternatives Suggested during draft Plan Consultation

Measure	Description	Source (not exhaustive)	Appraisal Conclusion
Grade-separated A48 Southern Distributor Road (SDR) and upgraded A4810 Steelworks Access Road (SAR) also known as the 'Blue Route'	This measure would see a combination of at-grade and grade separated junction improvements to the A48 Newport Southern Distributor Road and Steelworks Access Road to create an upgraded dual carriageway 'expressway' route through Newport	Environment and Sustainability Committee; Campaign Against Levels Motorway (CALM); Gwent Wildlife Trust; RSPB; Non-organisational responses, similar or identical to campaign responses ³⁴ .	'The Blue Route, either as a stand-alone measure or in-combination with public transport measures, is not considered to be a Reasonable Alternative to the draft Plan'. The report concluded that the Blue Route option should not be taken forward for further appraisal.

³⁴ Campaign Against Levels Motorway (CALM) members include Friends of the Earth, Wildlife Trust and RSPB, who encouraged their members to respond to the consultation using template responses (see M4 Corridor around Newport Consultation Participation Report for more information).

Measure	Description	Source (not exhaustive)	Appraisal Conclusion
Alignment of the Motorway to the south of Magor	This would see a new motorway to the south of Newport involving an alignment to the south of Magor, rather than to the north of Magor as shown in the current TR111 Notice and Black Route proposal.	Visitors to public exhibitions, predominantly residents of Magor.	‘On the basis of this appraisal, a route to the south of Magor, as considered within this document, should not be taken forward for further appraisal.’
Alignment of the Motorway to the west of Wilcrick Hill	This proposes an alternative alignment of a new motorway to the south of Newport, where the eastern section of the Black Route might divert west of Wilcrick Hill, Llanwern, before merging with the existing motorway on the western side of Magor junction (J23A).	Visitors to public exhibitions, predominantly residents of Magor.	‘On the basis of this appraisal, a route to the West of Wilcrick Hill, as considered within this document, should not be taken forward for further appraisal.’
Tunnel under the River Usk	This would see the Black Route involve a tunnel under the River Usk, as an alternative to a bridge crossing.	Visitors to public exhibitions.	‘On the basis of this appraisal, the draft Plan preferred strategy, which includes the Black Route, should be taken forward with a bridge crossing the River Usk. An alignment that includes a tunnel option as considered within this document should not be taken forward for further appraisal.’
Barrage across the River Usk	This would see the Black Route involve a barrage crossing across the River Usk, as an alternative to a bridge crossing.	Visitors to public exhibitions.	‘On the basis of this appraisal, the draft Plan preferred strategy, which includes the Black Route that is likely to involve a bridge crossing of the River Usk, should be taken forward to address the problems on the M4 around Newport. An option to develop a

Measure	Description	Source (not exhaustive)	Appraisal Conclusion
			barrage across the River Usk, as considered within this document, should not be taken forward for further appraisal.'
Tunnel widening at Brynglas	Direct widening of the two existing bores. This is different from the previous new bore considered as part of the M4 Corridor Enhancement Measures Programme ³⁵ .	Non-organisational responses; Enterprise and Business Committee.	'On the basis of this appraisal, an additional tunnel or widening of the tunnels at Brynglas, as considered within this document, should not be taken forward for further appraisal, as the solution to the identified problems. However, widening each bore of the tunnels as part of re-lining maintenance programme could represent betterment.'
Motorway to the north of Newport	This would involve the development of a new section of motorway to the north of Newport.	Non-organisational responses.	'On the basis of this appraisal, a motorway to the north of Newport, as considered within this document, should not be taken forward to address the problems on the M4 around Newport.'
Public Transport	This option proposes investment in public transport infrastructure and services as an alternative to additional motorway capacity. This also considers how public transport investment might be complementary to additional motorway capacity, as well as the potential impact of a Cardiff Capital Region Metro and rail electrification.	Welsh Liberal Democrats; Wales Green Party; Cardiff Council; Torfaen County Borough Council; Magor with Undy Community Council; Councillor Will Ward, Magor; Natural Resources Wales; Wildlife Trusts Wales; RSPB; Friends of the Earth; South Wales Mammal Group; Amphibian and	'On the basis of this appraisal, public transport enhancement measures are not considered to be a Reasonable Alternative to the draft Plan. The draft Plan is cognisant of potential future public transport enhancement measures and these are considered to be complementary to a motorway solution. It is assumed that public transport enhancement will be progressed separately by a group set up by

³⁵ See www.m4cem.com

Measure	Description	Source (not exhaustive)	Appraisal Conclusion
		Reptile Conservation (ARC) Trust; Campaign for the Protection of Rural Wales; Church Action for Sustaining the Environment; South East Wales Transport Alliance; Network Rail; ACT Travelwise; Sustrans; Chartered Institute of Logistics and Transport; Campaign Against Levels Motorway (CALM); Severn Tunnel Action Group; Campaign for Better Transport; Champion C2 Newport Cycling and Walking Route; CTC Cymru; Magor Action Group On Rail; Urban Condition ; Non-organisational responses; Visitors to public exhibitions.	the Welsh Government to examine proposals for a Cardiff Capital Region Metro system.'
Do Nothing Strategy	This would involve doing nothing above what is already planned or committed, known as the Do Minimum Scenario.	Non-organisational responses.	'On the basis of this appraisal, there is a strong need to do something to address the identified problems. Doing nothing other than initiatives already planned or committed, as considered within this document, is not considered to be a Reasonable Alternative to the draft Plan.'

4.4 How the Results of any Transboundary Consultations have been taken into Account

In accordance with Regulation 14 of the SEA Regulations the Welsh Government consulted the statutory agencies in England, the Environment Agency and Natural England, on the scope of the SEA. Both organisations returned comments stating that since the proposal is located solely within Wales, neither organisation anticipated significant environmental effects occurring in England.

Consequently, no response was received from the Environment Agency, following consultation on the Environmental Report. Natural England re-confirmed their scoping advice, stating that any effect on protected sites in England would be unlikely. As follows:

‘Based on the information provided, Natural England would not expect the proposed works to affect any national or European protected sites within England. We therefore have no comments that we would wish to make at this time.

We are aware that Natural Resources Wales (NRW) is providing advice to the Welsh government on the potential environmental effects of the proposed works; including with respect protected sites and landscapes. Should NRW identify potential effects on designated sites within England, we would be pleased to comment further.’

No changes have been made to the Plan or Environment Report as a result of statutory transboundary consultations.

5 The Reasons for Choosing the Plan as Adopted, in the Light of the Other Reasonable Alternatives Dealt With

5.1 Options Assessed in the SEA

The development of the draft Plan Environmental Report considered four high-level options for the Corridor around Newport. These were:

- The draft Plan (preferred strategy) – new section of motorway mainly following the TR111 protected route: the **Black Route** and its complementary measures;
- Reasonable Alternative – new section of dual 2-lane all-purpose road: the **Red Route** and its complementary measures;
- Reasonable Alternative – new section of motorway along Alternative Alignment to the south of Newport: the **Purple Route** and its complementary measures;
- The **Do Minimum Scenario** – no change to existing situation incorporating planned or committed measures.

Further details on the Reasonable Alternatives, the Do Minimum Scenario and the complementary measures are presented within the Environment Report.

5.2 Options Appraisal

A high-level comparison of these options is only possible at this stage; this is provided in Table 8 below, which has been transposed from the Environment Report.

Table 8: Appraisal of the Plan / draft Plan's preferred strategy, Reasonable Alternatives and the Do Minimum Scenario against SEA indicators

SEA Indicator	Plan / draft Plan – Black Route and its Complementary Measures	Reasonable Alternative – Red Route and its Complementary Measures	Reasonable Alternative – Purple Route and its Complementary Measures	Do Minimum Scenario
Air Quality	2	1	2	-1
Climatic Factors - Greenhouse Gas Reduction	0	0	0	-1
Climatic Factors - Adaption Measures	1	1	1	-1
Noise	1	0	1	-1
Biodiversity	-1	-1	-1	0
Population	1	1	1	-1
Human Health	1	1	1	-1
Soil	-1	-1	-1	0
Water	-1	-1	-1	-1
Material Assets	-1	-1	-1	0
Cultural Heritage	-2	-2	-2	0
Landscape and Townscape	-2	-2	-2	0

5.3 Identification of Preferred Option

Limitations on information at the strategic stage inhibit accurate prediction of effects on a number of environmental indicators. This has led to a precautionary conclusion against a number of indicators; particularly cultural heritage and landscape and townscape, for which a more detailed assessment is required to assess effects. Sensitive design and detailed assessment at project level provides additional opportunities to include specific mitigation and enhancement measures to further reduce potential effects.

The Do Minimum Scenario would lead to increasingly adverse environmental effects on air quality, greenhouse gases, population, human health, water and noise; and would not promote environmental improvement in the short or long-term.

The Do Minimum Scenario would have fewer negative environmental effects relative to the draft Plan and the Reasonable Alternatives on the following indicators: biodiversity, soil, material assets, cultural heritage and landscape and townscape. However, this is primarily due to the inability to undertake detailed assessments on these indicators at the strategic level and thus fully characterise possible mitigation measures. Mitigation measures have been identified for this option to avoid and minimise these effects based on the best knowledge at the time of this report given the level of detail that is available in the draft Plan and takes into account DMRB guidance and best practice from previous schemes.

The Do Minimum Scenario would not meet the aims and goals of the M4 Corridor around Newport as it maintains the current situation without providing any improvements or enhancements.

The two-lane Red Route would reach traffic capacity sooner than the three-lane motorway options with resultant adverse effects on air quality. The option would be the closest to residential properties at Dyffryn and crosses the Docks Way landfill site. The two-lane Red Route would not meet the aims and goals of the M4 Corridor around Newport as well as the draft Plan.

The Purple Route would be closer to the residential properties at Dyffryn than the draft Plan, but not as close as the Red Route. Like the Red Route it crosses the Docks Way landfill site. The Purple Route would not meet the aims and goals of the M4 Corridor around Newport as well as the draft Plan.

The draft Plan is predicted to enhance air quality for a significant number of properties along the existing M4, whilst having a minor effect on a relatively small proportion of residences along the new route; none of the changes would likely exceed national air quality standards.

The draft Plan provides benefits in terms of: air quality, climate change adaptation, noise and vibration, population and health.

The SEA process has shown that the draft Plan published in September 2013, would have fewer negative environmental effects by promoting improvements in air quality for longer, avoiding a major landfill site and being located further away from the residential area at Dyffryn and the Grade 1 listed Newport Transporter Bridge; whilst meeting the Plan objectives more positively than the other Reasonable Alternatives.

5.4 Adoption of the Plan

Welsh Government has concluded that, following extensive consultation on the Strategic Environmental Assessment and associated documents the ‘M4 Corridor around Newport Plan’ should be adopted and taken forward to a project level assessment.

The ‘M4 Corridor around Newport Plan’ consists of a new section of motorway between Magor and Castleton to the south of Newport and complementary measures:

- Reclassification of the existing motorway between Magor and Castleton - as a trunk road could enable traffic management, safety and revised access arrangements;
- A connection between the M4, M48 and B4245 - would provide relief to Junction 23A and to the local road network. It would also provide improved access to proposed park and ride facilities at Severn Tunnel Junction;
- Promoting the use of cycling - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure; and
- Promoting the use of walking - as an alternative to the car for journeys of up to three miles by providing new infrastructure or improving existing infrastructure.

The details of the above complementary measures will be developed as part of scheme development.

At the detailed design stage an Environmental Impact Assessment (EIA) and project level Habitats Regulations Assessment (HRA), known as ‘Assessment of Implications on European Sites (AIES)’, will facilitate a detailed assessment of potential environmental effects and enable consideration of additional opportunities for mitigation and enhancement.

6 Measures to be Taken to Monitor Environmental Effects of the Plan

The SEA Regulations require the responsible authority to ‘*monitor the significant environmental effects of the implementation of each plan or programme with the purpose of identifying unforeseen adverse effects at an early stage and being able to undertake appropriate remedial action*’.

A detailed framework has been prepared to monitor the significant environmental effects, both positive and negative, of implementing the M4 Corridor around Newport Plan. Table 9 identifies the monitoring commitments against relevant receptors. The results of this monitoring are expected to be published as an Annual Monitoring Report, including a non-technical summary.

The monitoring framework is used to determine whether the assessment’s predictions of environmental effects were accurate, whether the Plan is contributing to the achievement of the desired environmental objectives and targets, whether mitigation measures are performing as well as expected or whether necessary changes have unforeseen effects.

Monitoring should focus on significant environmental effects; i.e. those that indicate a likely breach of international, national or local legislation or recognised guidelines and standards, effects that indicate the potential for irreversible damage or where there was uncertainty in the assessment process.

Due to potential uncertainty in a high-level strategic assessment, the monitoring framework includes the full suite of environmental indicators since a number of benefits arise from monitoring the Plan, including:

- Identifying when action should be taken to reduce or offset any potential environmental effects of the Plan;
- Enhancing understanding of how the environment is changing across the study area;
- Tracking whether the Plan has had any unforeseen environmental effects;
- Providing baseline data for subsequent assessments.

Specific requirements identified separately by the Strategic Habitats Regulations Assessment² have been highlighted within that report.

Where appropriate the Plan will make use of information currently being collated by relevant organisations through current and on-going monitoring strategies that could take place at periodic intervals throughout the lifetime of the Plan; e.g. local authority monitoring for Local Development Plans. This will also inform and update the environmental baseline to inform project level environmental impact assessment (EIA). An M4 Corridor around Newport monitoring plan could also be reviewed during project level EIA to ensure the monitoring work is targeted and fit for purpose.

Monitoring results will be reviewed periodically to ensure that legislative compliance is maintained. Should monitoring indicate that compliance thresholds may be exceeded, integrated mitigation measures will be implemented, or new mitigation measures developed, to avoid or reduce effects.

Table 9: Monitoring of the Implementation of the Plan

Receptor	Effect to be Monitored	Frequency	Source	Commentary
Air Quality	<p>Emissions of air pollutants apportioned to the transport sector, in areas directly affected by the Plan;</p> <p>Number of Air Quality Management Areas (AQMAs) in the Newport administrative area where transport is the primary cause;</p> <p>Change in traffic volumes, composition and congestion in areas directly affected by the Plan;</p> <p>Modal proportion of transport use (private car, rail, bus, etc.);</p> <p>Project level effects (through project level monitoring arrangements).</p>	<p>Annual</p> <p>Annual</p> <p>Annual</p> <p>Annual</p> <p>TBC</p>	<p>Newport, Monmouth and Cardiff council's review and assessment reports and local air quality monitoring data;</p> <p>Welsh Air Quality Forum website³⁶;</p> <p>Defra website³⁷;</p> <p>Environment Agency (EA) website³⁸;</p> <p>Traffic data will be sourced as per Section 7 of the WelTAG Stage 1 (Strategy Level) Appraisal, e.g. automatic traffic counts and (Motorway Incident Detection Automatic Signalling) MIDAS data;</p> <p>Modal shift will be sourced as per Appendix C in the Environmental Report.</p>	<p>NCC operates two automatic air quality monitoring sites with 'real-time' analysers that constantly monitor pollutants³⁹;</p> <p>Deposition of contaminants will be inferred from air quality data;</p> <p>Traffic data required for air quality assessment includes: 24hr Annual Average Daily Traffic (AADT) flows, including the percentage of Heavy Duty Vehicles (HDVs) and average speed (kph) data;</p> <p>Supplemental project level surveys will be undertaken, in accordance with EIA and HRA requirements as necessary.</p>
Climatic Factors –	Emissions of greenhouse gas emissions apportioned to the transport		<p>Welsh Air Quality Forum website⁴⁰;</p> <p>Defra website⁴¹;</p>	Traffic data required for air quality assessment includes:

³⁶ <http://www.welshairquality.co.uk/>³⁷ <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>³⁸ <http://www.environment-agency.gov.uk>³⁹ Newport City Council Air Pollution Monitoring, available at:http://www.newport.gov.uk/_dc/index.cfm?fuseaction=environmentalhealth.homepage&contentid=cont446705⁴⁰ <http://www.welshairquality.co.uk/>

Receptor	Effect to be Monitored	Frequency	Source	Commentary
Greenhouse Gas Emissions	sector, in areas directly affected by the Plan; Change in traffic volumes, composition and congestion in areas directly affected by the Plan; Modal share of walking and cycling; Project level effects (through project level monitoring arrangements).	Annual Annual Annual TBC	Environment Agency (EA) website ⁴² ; Traffic data will be sourced as per the WelTAG Stage 1 (Strategy Level) Appraisal, e.g. automatic traffic counts and (Motorway Incident Detection Automatic Signalling) MIDAS data; Modal share: National Travel Survey.	24hr Annual Average Daily Traffic (AADT) flows, including the percentage of Heavy Duty Vehicles (HDVs) and average speed (kph) data; Supplemental project level surveys will be undertaken, in accordance with EIA and HRA requirements as necessary.
Climatic Factors – Climate Change Adaption	Flood risk and extreme rainfall events, in areas directly affected by the Plan; Project level effects (through project level monitoring arrangements).	Annual TBC	Natural Resources Wales; Wentlooge and Caldicot Internal Drainage Board.	Linked via monitoring for water receptor; Supplemental project level surveys will be undertaken, in accordance with EIA and HRA requirements as necessary.
Noise and Vibration	Noise levels apportioned to the transport sector, in areas directly affected by the Plan; Number of households affected by Noise Action Plans; Project level effects (through project level monitoring arrangements).	Annual Annual TBC	Welsh Government, Environmental Noise Directive (END) noise mapping.	Supplemental project level surveys will be undertaken, in accordance with EIA and HRA requirements as necessary.

⁴¹ <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>

⁴² <http://www.environment-agency.gov.uk>

Receptor	Effect to be Monitored	Frequency	Source	Commentary
Biodiversity	Condition of protected sites within study area (e.g. Gwent Levels SSSI network, Severn Estuary, River Usk); Project level effects (through project level monitoring arrangements).	Annual TBC	Natural Resources Wales.	Supplemental project level surveys will be undertaken, in accordance with EIA and HRA requirements as necessary.
Population	Access to key services; Community severance; Levels of walking and cycling as alternative 'short-distance' commuting methods; Project level effects (through project level monitoring arrangements).	Annual Annual Annual TBC	Accession; Passenger Focus.	Supplemental project level surveys will be undertaken, in accordance with EIA requirements.
Human Health	Accidents related to transport: total number of killed or seriously injured (KSI) adult and child casualties by travel mode; Respiratory health: number of households within AQMAs in the Newport administrative area where transport is the primary cause; Levels of walking and cycling as alternative 'short-distance' commuting methods; Lengths of footpaths, bridleways and	Annual Annual Annual Annual	Transport Statistics Road Accident Database; As per Air Quality monitoring; National Travel Survey; Local Authority Performance	Supplemental project level surveys will be undertaken, in accordance with EIA requirements.

Receptor	Effect to be Monitored	Frequency	Source	Commentary
	permissive rights of way; Project level effects (through project level monitoring arrangements).	TBC	Indicators.	
Soils and Geology	Transport effects on soils (loss, sealing, contamination); Project level effects (through project level monitoring arrangements).	Annual TBC	Project level assessment.	Supplemental project level surveys will be undertaken, in accordance with EIA and HRA requirements as necessary.
Water	Water quality in watercourses receiving highway runoff from the proposed highway; Water quantity in watercourses directly affected by the Plan; Project level effects (through project level monitoring arrangements).	Annual Annual TBC	Natural Resources Wales: Water Framework Directive (WFD) Monitoring; Caldicot and Wentlooge Levels Internal Drainage Board monitoring;	Supplemental project level surveys will be undertaken, in accordance with EIA and HRA requirements as necessary.
Material Assets	Levels of use of secondary and recycled aggregates in construction; Condition of the transport infrastructure; Percentage use of low energy technologies used in operation; Project level effects (through project level monitoring arrangements).	TBC Annual TBC TBC	Project level assessment; Transport Statistics; Project level assessment.	Supplemental project level surveys will be undertaken, in accordance with EIA requirements.

Receptor	Effect to be Monitored	Frequency	Source	Commentary
Cultural Heritage	Transport effects on historic sites and landscapes; Project level effects (through project level monitoring arrangements).	Annual TBC	Project level assessment.	Supplemental project level surveys will be undertaken, in accordance with EIA requirements.
Landscape and Townscape	Tranquillity and light pollution effects in areas directly affected by the Plan; Effects on landscapes and townscapes from transport; Project level effects (through project level monitoring arrangements).	Annual TBC TBC	Natural Resources Wales, Tranquillity Mapping; Project level assessment.	Supplemental project level surveys will be undertaken, in accordance with EIA requirements.

7 Supporting Assessments

7.1 Strategic Habitats Regulations Assessment

The Strategic Habitats Regulations Assessment² was prepared to provide information to the Welsh Ministers ('the Competent Authority') on the implications of the draft Plan for the M4 Corridor around Newport on European sites, as required by Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) (the 'Habitats Regulations').

The level of the assessment was based on the indicative information available at plan stage. Fifteen European sites were identified within the 30km zone of potential influence including twelve Special Areas of Conservation (SAC), two Special Protection Areas (SPAs) and one Ramsar site. Ten sites were screened out due to lack of a pathway between the sites and the draft Plan.

Twenty plans and projects were identified as being most likely to have in-combination effects with the draft Plan, and have been considered in the assessment. Potential significant effects were identified through the consideration of the implementation (construction and operation) of the draft Plan.

Based on the precautionary approach, and the information available at the strategic stage, the implementation of the draft Plan alone, was considered to have the potential to give rise to significant effects on features of the following European sites:

- River Usk / Afon Wysg SAC;
 - Migratory fish features;
 - Otter;
- Severn Estuary / Môr Hafren SAC;
 - Migratory fish features;
- Severn Estuary SPA ;
 - Waterbird features, including waterbird assemblage;
- Severn Estuary Ramsar site;
 - Waterbird features, including waterbird assemblage;
 - Migratory fish features;
- Wye Valley and Forest of Dean Bats / Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena SAC.
 - Lesser horseshoe bat.

It was considered that the other features of these sites would not be significantly affected by the draft plan alone or in-combination with other plans or projects. Implementation of the draft Plan could however have the potential for adverse effects which could hinder the features of the sites from achieving their Conservation Objectives.

Avoidance and mitigation measures were identified which would ensure that the potential adverse effects (whether from construction or operation of any scheme) identified would be avoided or mitigated. All necessary measures would be rigorously applied during the design and delivery of any scheme with advice from Natural Resources Wales.

Because of this the Strategic Habitats Regulations Assessment concluded that the Plan, if adopted, when considered either alone or in-combination with other plans or projects, would not adversely affect the integrity of any European sites.

The Strategic Habitats Regulations Assessment was subject to consultation with Natural Resources Wales, and their comments were taken into consideration in the finalisation of the report.

Therefore for the purposes of Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) the Strategic Habitats Regulations Assessment concluded, beyond reasonable scientific doubt, that the draft Plan will not adversely affect the integrity of any European sites.

The assessment of the effects would be reviewed with increasing specificity in subsequent stages through further details revealed by any HRA process that may be required for any project seeking consent.

The Strategic Habitats Regulations Assessment of the Plan will be made available with the Plan.

7.2 Health Impact Assessment

A Health Impact Assessment was undertaken on the draft Plan, the Reasonable Alternatives and the Do Minimum Scenario. Taking into account responses received during the draft Plan consultation, a Health Impact Assessment was undertaken on the M4 Corridor around Newport Plan.

In summary, the Plan Health Impact Assessment concluded that the M4 Corridor around Newport Plan would be expected to provide positive impacts on the population and health, whereas without the Plan the current situation would worsen.

The Health Impact Assessment of the Plan will be made available with the Plan.

7.3 Equality Impact Assessment

An Equality Impact Assessment was undertaken on the draft Plan, the Reasonable Alternatives and the Do Minimum Scenario. Taking into account responses received during the draft Plan consultation, an Equality Impact Assessment was undertaken on the M4 Corridor around Newport Plan.

In summary, the Plan Equality Impact Assessment concluded that the M4 Corridor around Newport Plan would be expected to provide positive impacts on the population and equality, whereas without the Plan the current situation would worsen.

An Equality Impact Assessment of the Plan will be made available with the Plan.

7.4 Subsequent Assessments (Next Steps)

7.4.1 Environmental Impact Assessment and Habitats Regulations Assessment

The SEA process has identified the key environmental issues, identified mitigation measures and formulated a monitoring strategy to inform the implementation of the M4 Corridor around Newport Plan. Scheme level implementation of the M4 Corridor around Newport Plan will be supported by detailed assessments through Environmental Impact Assessment (EIA), project-level Habitats Regulations Assessment, known as ‘Assessment of Implications on European Sites (AIES)’, and relevant licence and consent requirements.

The EIA and AIES processes will review the work undertaken during the SEA and SHRA and include collation of a detailed baseline following extensive surveys, modelling and assessments, further statutory consultation and production of an Environmental Statement and AIES report. In summary, the EIA and AIES processes will focus and influence the overarching scheme development to avoid, minimise and if required offset any significant adverse effects on the environment in addition to identifying further opportunities to promote positive effects and develop environmental enhancements.

8 Availability of this Document

The M4 Corridor around Newport Plan, along with the Environmental Report and the post-adoption SEA Statement (this document) are available to download online at www.m4newport.com and are available to view (or can be requested for a reasonable charge) at the following deposit points:

- Welsh Government, Cathays Park, Cardiff CF10 3NQ;
- Newport Central Library, NP20 1PA.

A Non-Technical Summary of the Environmental Report is also available online at www.m4newport.com or can be requested as above.

Large print versions of this document are made available on request.

Appendix A

SEA Scoping Report: Consideration of Statutory Consultee Responses

A1 Consideration of the Cadw Response to the SEA Scoping Report

Table A1: Consideration of the Cadw Response to the SEA Scoping Report

Ref.	Cadw Comments	Consideration within the Relevant Documents
1	Cadw has been consulted on a scoping report associated with the proposed M4 Corridor around Newport. Cadw, Welsh Government's historic environment service, is a statutory consultee on the SEA. Cadw also functions as the archaeological advisors to Welsh Government.	No action required.
2	<p>Cadw has been asked to comment on a scoping report which sets out how the assessment for the Strategic Environmental Assessment, Equality Impact Assessment and Health Impact Assessment will be undertaken. It is Cadw's view, given its remit, that its comments shall focus on the content of the Strategic Environmental Assessment and it will defer to other organisations to comment upon the quality of the Equality Impact Assessment and the Health Impact Assessment. Cadw has been asked to provide an opinion on the adequacy of the scoping report.</p> <p>Section 4 of the SEA Scoping Report set out six specific and helpful questions to help focus consultation responses.</p>	No action required.
3	<p><i>1. Are there any specific policies, plans and programmes that will affect or influence environmental aspects of the draft Plan that we should address in our detailed review?</i></p> <p><i>There have been changes to the policy framework since the previous scheme proposals were developed.</i></p> <p>Cadw is engaged in the development of a new Heritage Bill for Wales. A dedicated bill team has been formed and our initial proposals are currently the subject of a public consultation (The future of our past: A consultation on proposals for the historic environment of Wales) that will end on 11th October 2013. The consultation sets out the Welsh Government's policy and legislation proposals to improve the protection of the historic environment of Wales and</p>	<p>Should a new Heritage Bill be passed, it will be considered during the EIA, should the draft Plan be adopted.</p> <p>Cadw's conservation principles and relevant updates to DMRB and local Plans will be used to inform scheme development, should the draft Plan be adopted.</p>

Ref.	Cadw Comments	Consideration within the Relevant Documents
	<p>promote its sustainable management. It also outlines options and proposals for changes to the delivery of historic environment services on the national, regional and local level. The Bill is part of a wider Welsh Government legislative programme, which also includes provision for the natural environment and planning. All three pieces of this legislation are interlinked and throughout the development of these Bills, the legislative teams will work closely to ensure a cohesive and joined-up approach.</p> <p>The consultation responses will be subjected to analysis and consideration before substantive recommendations are made to Cadw's Minister. The provisions of the Bill will be informed by the detailed consideration of the consultation responses. The Welsh Government intends to introduce the Bill into the National Assembly for Wales before the end of this Assembly term. Cadw therefore advises that the exact impact of the Heritage Bill on the proposed development is unknown at this stage and that the project team should keep abreast of developments with this fast developing area of Cadw's work.</p> <p>Cadw published its Conservation principles for the sustainable management of the historic environment in Wales in 2011. In this document, Cadw set out its logical approach for making decisions about all aspects of the historic environment and the six conservation principles set out within inform Cadw's approach to the protection and management of the historic environment. The section entitled Integrating conservation with other interests will be of particular pertinence.</p> <p>Chapters 10 and 11 of the Highways Agency's Design Manual for Roads and Bridges, which covers matters relating to cultural heritage, have been updated in the intervening period.</p> <p>The Local Development Plans for Cardiff, Newport and Monmouthshire are in different stages of adoption.</p>	

Ref.	Cadw Comments	Consideration within the Relevant Documents
4	<p><i>2. Do you agree that the approach to reviewing and updating the baseline data summarised for inclusion in the Environmental Report is appropriate, i.e. is it at the right level and coverage across social and environmental issues? Do we propose to cover the correct geographic areas and issues?</i></p> <p>It is Cadw's opinion that the approach to reviewing and updating the baseline data summarised for inclusion in the Environmental Report as presented in section 3.3 of the SEA Scoping Report is appropriate and adequate for purpose. The approach is correctly pitched and clearly articulated.</p> <p>Given the significance and potential impact of the proposed development, it is Cadw's opinion that the proposal will affect the wider historic environment and that the geographic area from which the baseline data is collected should be wider than just the footprint of the proposed development, being designed to specifically include all those historic environment assets, whether designated or not and their settings, that are affected. Cadw agrees that the correct issues have been identified.</p> <p>Cadw advises that the Welsh Government's transport consultants should check to determine whether the existing Historic Landscape Assessment used the ASIDOHL2 methodology or its predecessor. There are significant differences between the two versions of the methodology and if the HLA was undertaken using the earlier version it should be revised using the newer version.</p>	<p>The wider historic environment beyond the development footprint will be considered in the strategic assessment and scheme development, should the draft Plan be adopted.</p> <p>ASIDOHL2 will be undertaken during scheme level assessment, should the draft Plan be adopted.</p>
5	<p><i>3. Do you know of any additional relevant baseline data which is pertinent to the draft Plan SEA? Do you collect any information that could be used to enhance the completeness of baseline information?</i></p> <p>The Cultural Heritage chapter for the Environmental Statement for the previous M4 scheme was curtailed in 2008 before it was fully completed. However, the work underpinning this chapter on archaeology, the built heritage and the historic landscape all remains valid, and these reports would have been appendices to the</p>	<p>Previous cultural heritage information and additional studies will be used to inform the strategic assessment and scheme level assessment should the draft Plan be adopted.</p> <p>Cadw will be consulted on future M4 Corridor around Newport outputs to confirm the relevant</p>

Ref.	Cadw Comments	Consideration within the Relevant Documents
	<p>Environment Statement. Cadw advises that this information requires collating for ease of access.</p> <p>The date at which the previous appointed archaeological sub-contractor ceased to collect data needs to be identified so that a small data-gathering exercise can be undertaken to bring this work up to date and not duplicate work already undertaken. For example an important piece of work that was completed subsequent to the previous exercise was the comprehensive LiDAR survey of the Gwent Levels. Similarly, academic volumes of pertinence are known to be in preparation for publication, for example on the Gwent Levels in the Bronze Age. Such volumes may contain new data relevant to the draft Plan SEA. There may also be relevant data in work undertaken on the Severn Tidal Power assessment project.</p> <p>One of Cadw's statutory duties is to maintain and enhance the schedule of ancient monuments of national importance. Cadw advises that it has an active scheduling enhancement programme in progress and that it is funding the four Welsh Archaeological Trusts to undertake threat-related scheduling enhancement projects on its behalf across Wales. One significant output from these projects is the recommendation to Cadw to assess sites for scheduling as monuments of national importance. Sites accepted for scheduling receive legal protection. Cadw currently has active scheduling enhancement projects focusing on medieval and post-medieval themes and there is a strong possibility that scheduling proposals may be recommended for Cadw's consideration within the proposed development area and its immediate vicinity.</p>	protected features have been considered.
6	<p>4. <i>Do you agree that the identified SEA objectives are appropriate?</i></p> <p>Cadw agrees that the identified SEA objectives, particularly Nos. 10 and 11 are appropriate and are competently phrased.</p>	No action required.

Ref.	Cadw Comments	Consideration within the Relevant Documents
7	<p><i>5. Is the SEA process set out transparent and appropriate?</i></p> <p>Cadw agrees that the SEA process as set out in the Scoping Report is transparent and appropriate. It follows appropriate published regulations and guidance. The approach used, including its successive stages, is outlined.</p>	No action required.
8	<p><i>6. Are there any specific organisations who should be contacted as part of the SEA Environmental Report consultation process?</i></p> <p>Cadw advises that Glamorgan-Gwent Archaeological Trust and the Royal Commission on the Ancient and Historical Monuments for Wales should be contacted as part of the SEA Environmental Report consultation process. Both organisations maintain considerable databases of information relating to the proposed development area, and both also have roles within the planning system.</p>	Glamorgan-Gwent Archaeological Trust and the Royal Commission on the Ancient and Historical Monuments for Wales data was used to inform the baseline information to inform the assessment. Both organisations are to be consulted during scheme development.
9	In summary, Cadw confirms that it is content with the standard and adequacy of the content of the SEA Scoping Report.	No action required.

A2 Consideration of the Natural Resources Wales Response to the SEA Scoping Report

Table A2: Consideration of the Natural Resources Wales Response to the SEA Scoping Report

Ref.	NRW Comments	Consideration within the Relevant Documents
1.1	<p>We welcome the intention for the Environmental Report to take account of comments received by consultation bodies in response to this scoping report. It is however, disappointing that consultation on this scoping report has not undertaken more widely. Section 3 of the CLG/Welsh Government ‘Practical Guide to the Strategic Environmental Assessment Directive’ suggests ‘consultation with the public at earlier stages (e.g. when considering the scope of the Environmental Report) can provide useful information and public and stakeholder opinions on issues relevant to the plan or programme and the SEA. This can also help to avoid issues arising later which might delay the preparation of the plan or programme’.</p>	<p>Noted.</p> <p>Consultation on the Scoping Report was undertaken with statutory consultees as required by Regulation 12(5) the SEA Regulations.</p> <p>Key stakeholders and the public were engaged throughout the extensive development work to inform a draft Plan, including a series of workshops focussed on key stakeholders and the public.</p>
1.2	<p>We note that the context for the proposals under scrutiny arises from studies undertaken in 1990 (SWATS Report) and 2004. Whilst the need to address the challenges of congestion on the M4 around Newport are accepted, Natural Resources Wales would suggest that this SEA scoping document should incorporate further information on these studies and in particular, those originating from the Ministerial Review in 2004, which examined route corridors and which ‘confirmed the route to the South of Newport as the optimal solution to tackling problems of congestion on the M4 corridor around Newport’. We would suggest that consideration of these earlier studies within this scoping document would be helpful given the conclusions in the CEM WelTAG Stage 1 (Strategy Level) Appraisal during 2012 did not originally include consideration of the ‘new motorway capacity routed to the south of Newport’ and that this option has only recently been re-introduced, subject to recent discussions between Welsh Government and HM Treasury and Department for Transport</p>	<p>Noted and addressed in ‘Previous Work’ section of draft Plan consultation documents.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
1.3.1	<p><i>Capacity</i></p> <p>Further information would be welcomed regarding the periodicity of traffic volume excess on the M4 around Newport. For example, does the excess volume (beyond design) occur at certain times of day and/or during the year or is the exceedence ‘constant’. Further information would also be welcomed on the location, nature and magnitude of ‘new development’ traffic.</p> <p><i>Resilience</i></p> <p>Further information would be welcomed regarding the nature, frequency and timing of ‘disruption due to severe weather events’.</p> <p><i>Sustainable Development</i></p> <p>Further information would be welcomed on ‘traffic noise’ from both the motorway and local roads. Similarly, further information on air quality and deposition of air borne pollutants from both the motorway and local roads would be welcomed. We would particularly welcome information on nitrogen deposition, nitrogen oxide concentrations and sulphur dioxide concentrations and deposition within 200 metres of the M4 itself and feeder roads and junctions. We note that AQMAs identified in Figure 1.3 of this scoping report do not necessarily relate to the M4 itself but to areas on local roads. It is also noted that AQMAs associated with the M4 itself appear to be associated with junctions (J26, J26). Clarification would therefore welcome further information as to whether air quality issues in these AQMAs are associated with congestion at given times of the day/week/year and/or whether the air quality issues are ‘constant’.</p>	<p>Capacity – Further information would be provided within the EIA.</p> <p>Resilience – Further information would be provided within the EIA.</p> <p>Sustainable Development – Detailed assessment of noise and air quality will be undertaken through the EIA process.</p>
1.3.2	<p>TPO2: We note the reference to the need for improved transport connections with the Republic of Ireland. Further information on the levels of traffic (existing and projected) using the M4 at Newport as a means of accessing/exiting the Irish Republic would be welcomed.</p> <p>TPO8: See comments above on sustainable development.</p>	<p>TPO2 - This level of detail would be provided within the EIA.</p> <p>TPO8 – see 1.3.1.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
1.3.3	See comments above on 1.2.	See 1.2.
1.3.4	Clarification would be welcomed as to what might be meant by ‘minor changes’ to the alignment of the TR111 protected route.	The route options are corridors rather than a definitive route. Detailed investigation and assessment at EIA may require deviation from the TR111 route.
1.3.5	<p>Reference should be made to the River Usk’s status as a SSSI and to all other nature conservation designations which may be affected, either directly or indirectly, by the proposals. In particular, given the proximity to the Severn Estuary SAC/SPA/Ramsar and the presence of migratory and mobile species associated with both the estuary and the River Usk, consideration will need to be given to sites which are hydrologically linked to the River Usk.</p> <p>Consideration should be given to potential effects related to increased light pollution and loss of tranquillity.</p> <p>The SEA Directive and process requires consideration of ‘secondary, cumulative, synergistic, short, medium and long term permanent and temporary, positive and negative effects’ on the environment. We would therefore suggest that, as an integral part of the proposals, junction strategies and likely induced and ancillary development arising out of the proposals, should be included within this strategic assessment process and should not be deferred down to the project level. The aim of this assessment process should be to consider the likely effects (positive and negative) of the proposals as a whole.</p>	<p>All relevant designations have been referenced in the Environmental Report and the Consideration of the Options for the M4 Corridor around Newport in relation to the requirements of the Habitats Regulations report.</p> <p>Effects from light pollution and loss of tranquillity have been considered within the SEA.</p> <p>It is not possible to present a junction strategy at the strategic stage. The details required to implement a junction strategy are only available following project level assessment and focused consultation.</p>
1.3.6	See comments above on 1.3.5 regarding the need to consider junction strategies within this strategic assessment process.	See 1.3.5.

Ref.	NRW Comments	Consideration within the Relevant Documents
1.3.8	<p>Complementary measures are explained in Section 1.3.8 and in Table 1.1. We would wish to be fully consulted on these complementary measures to ensure that any adverse impacts are avoided or acceptably mitigated for. We would have concerns as to their impact on SSSIs and SACs.</p> <p><i>SEA Section 1.4 Consequences of Do Nothing</i></p> <p>The title given is ‘consequences of doing nothing’, however should this sub title read ‘consequences of do minimum’ to reflect the contents of the following paragraphs?</p>	<p>Detailed designs of complementary measures are not available at this strategic stage; such detail will be included within the EIA and HRA should the draft Plan be adopted; NRW would be consulted through these processes.</p>
1.4	<p>See comments above on 1.3.1 regarding traffic flows and capacity and air quality. We would stress that, whilst the information on AQMA’s is, of course, highly important, these designations relate to human health and do not reflect all potential adverse effects on the environment. It is not necessarily the volume of emissions that is of concern and significance but the type of emissions, deposition rates and the sensitivity of the receiving environment. Potential effects to the environment should also be considered in the context of prevailing conditions and the particular contribution from road traffic to that baseline.</p>	<p>Qualitative assessment of prevailing air quality effects have been considered with respect to all relevant indicators.</p> <p>Detailed assessment of air quality (including deposition, etc.) will be undertaken through the EIA and HRA processes at project level as required. Such detail is not available at this strategic stage. An assessment would require detailed traffic modelling and a defined route with a finalised design.</p>
2.1	<p>See comments above on 1.3.5 and 1.3.6. The SEA Directive and process requires consideration of ‘secondary, cumulative, synergistic, short, medium and long term permanent and temporary, positive and negative effects’ on the environment. We would therefore suggest that, as an integral part of the proposals, junction strategies and likely induced and ancillary development arising out of the proposals, should be included within this strategic assessment process and should not be deferred down to the project level.</p>	<p>See 1.3.5.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
2.2.2	<p>Reference should be made to the Conservation of Habitats and Species Regulations 2010 (as amended). Natural Resources Wales welcomes the intention to undertake Habitats Regulations Assessment on the M4 proposals and looks forward to commenting on the forthcoming HRA screening (Test of Significance) in due course. Given the proximity of the proposals to the Severn Estuary SAC/SPA/Ramsar and the presence of migratory and mobile species associated with both the estuary and the River Usk SAC, it is suggested that consideration will need to be given in the HRA process to potential effects on European Sites and associated features of interest which are hydrologically linked to the River Usk.</p>	<p>The relevant documents include reference to the Conservation of Habitats and Species Regulations 2010 (as amended).</p> <p>A Consideration of the Options for the M4 Corridor around Newport in relation to the requirements of the Habitats Regulations report has been included within the relevant documents and considers the relevant European sites.</p>
3	<p>We welcome the intention for the Environmental Report to take account of comments received by consultation bodies in response to this scoping report.</p>	<p>Noted.</p>
3.1	<p>The development of SEA objectives is not a statutory requirement of the SEA process but is a commonly used methodological tool. We have no issue in principle with the proposed spatial scope of the assessment however, clarification would be welcomed as to whether 'international' issues will also be considered, particularly in light of the reference to the importance of the M4 to the Irish Republic in section 1.3.2 of this report.</p> <p>The temporal nature of proposals is also outlined within this report (short term 0-4 years, medium term 5-9 years and long term 10+ years). We would also direct you to topical/sectoral assessment requirements, which may reflect a different time-span for assessment than provided by this scoping report. For example, a flood consequence assessment would consider climate change factors over the lifetime of development and assess risks and consequences over 75 years for different flood events.</p> <p>In terms of temporal scope, clarification would be welcomed as to whether these scales include construction phases as well as operation phases.</p>	<p>Consideration of transboundary effects is required by SEA. Natural England and the Environment Agency were consulted and responded to indicate that significant effects in England were unlikely. No pathway of effect was identified requiring consultation with the Republic of Ireland.</p> <p>A flood consequences assessment will be submitted with the EIA should the draft Plan be adopted.</p> <p>The temporal scope includes both construction and operational phases.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p><i>Flood Risk Management Matters</i></p> <ul style="list-style-type: none"> • Flood risk management matters should be considered at both the strategic level and at the project development stages. Information generated as part of Local Flood Risk Management Strategies and Strategic Flood Consequence Assessments may also be of use. • In the identification of issues and significant effects, it is suggested a precautionary approach should be undertaken i.e. where any preferred route option is directed away from areas of high flood risk hazard and only subsequently considered in areas of risk where the management of risks and consequences of flooding have been demonstrated as acceptable over the lifetime of the development (as part of a flood consequence assessment). • From a flood risk management perspective, baseline data should assess information on flood risk, including the flood maps, Development Advice Maps (DAM's) and NAFRA datasets. All of this information should be considered as part of the baseline data to ensure that the risk of flooding and the effects upon receptors are given due consideration within the options appraisal. The Welsh Assembly Government's development advice maps (DAMS) and supporting information should be considered at the strategic level and inform the identification of key issues and significant effects in Table 3.3 of the SEA scoping report. • At the project level, we will normally provide advice on the scope of a flood consequence assessment, on request. A checklist is enclosed (Annex 2) to assist in the preparation of a flood consequence assessment, which will, where appropriate, inform any necessary mitigation and/or compensatory measures. Additional information and advice may also be obtained from us in providing a greater level of detail of coastal flooding predictions and the impacts of climate change. Should you require advice on the scope of an assessment please contact our Flood Risk Analysis Technical Specialist. 	<p>Flood risk was considered at a strategic level; further assessment will be undertaken through the EIA process, should the draft Plan be adopted, when the requisite detail is available.</p> <p>Consideration of flood risk between the preferred strategy and Reasonable Alternatives formed part of the SEA assessment.</p> <p>Development Advice Maps overlain with the preferred strategy and Reasonable Alternatives were included within the baseline data of the Environmental Report.</p> <p>A full flood consequences assessment will be undertaken at project level as advised, should the draft Plan be adopted, when the requisite detail is available.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<ul style="list-style-type: none"> With regard to tidal flood risk, existing infrastructure, mainly to the south of the Newport area is protected against tidal inundation (to a standard of service). In assessing the risks and potential consequences of flooding, the application of climate change factors may result in or indicate tidal breach/overtopping of the sea defences. In proposing a new motorway and associated works, you should assess the risks of flooding using breach/failure of the existing defences, which mainly comprise of embankments and wave return walls in certain exposed areas, including Caldicot Levels. This could also have an impact on the effective conveyance of fluvial flood flows from the north that discharge into the extensive reën network on the Caldicot Levels (south of the proposed route), which ultimately discharge into the Severn Estuary. We would be concerned as to the impact of flooding, its risks and consequences on people, property and natural heritage in the area between the new carriageway and the coastline; and on the road scheme itself. In meeting the success criteria, the outcomes of a detailed flood consequence assessment must demonstrate that the risks and consequences of flooding to and/or from the infrastructure are managed down to an acceptable level. The assessment must be compliant with Planning Policy (PPW, TAN14 and TAN15). As part of this criteria, your assessment must also demonstrate that there are no unacceptable risks to third parties and whereby flooding is not increased elsewhere. We also refer you to the report “Environment Agency Wales - Managing flood risk on the Severn Estuary – South East Wales” dated January 2011. This “aspires” to maintain the existing flood defences along the coastline over the next 100 years to keep pace with climate change. It is important that these sea defences are not relied upon in the Scheme design because it cannot be guaranteed that the aspirations in this Strategy will be implemented in the future. Such aspirations are dependent on the economy, our priorities for providing flood defence infrastructure throughout Wales and future funding available to construct such schemes. Drainage Issues: The potential effects of additional hard-standing and positive 	<p>This will be considered within the flood consequences assessment at project level as advised, should the draft Plan be adopted.</p> <p>Noted. This will be considered during the flood consequences assessment to be undertaken at project level as advised in the previous NRW comment above, should the draft Plan be adopted and when the requisite detail is available.</p> <p>Noted. This will be considered during the flood consequences assessment to be undertaken at project level as advised in the previous NRW comment above, should the draft Plan be adopted and when the requisite detail is available.</p> <p>Drainage issues are considered within</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>drainage systems on local watercourses and drainage reens for the Preferred Option should be assessed. Any infrastructure improvements within the Caldicot levels are likely to impact upon the unique drainage system that exists within this area and should be considered a more sensitive receptor. Any proposals for infilling of reens will require compensatory measures for the loss of storm water storage and habitat.</p> <ul style="list-style-type: none"> • Consideration should be given to ensure that structures such as outfalls and footpaths, access and open space arrangements are maintained in perpetuity. • Additional information on flood risk and drainage may also be obtained from the lead local flood authorities and Internal Drainage Board. We note that the Caldicot and Wentloog Internal Drainage Board have been consulted as part of the Scoping Report consultation. <p><i>Water Management: Matters relating to Water Resources</i></p> <ul style="list-style-type: none"> • We would suggest request that an updated water features survey be provided, reviewed and agreed as part of this assessment process. • At the project stage, should there be a requirement to abstract or impound water before, during or following the project then there are likely to be constraints added to any Licence issued. This could affect the amount of water available and the times when water may be abstracted. It is therefore suggested that these issue be considered at this strategic stage of the proposed development. • At the project stage, it is the applicant's responsibility to ensure their proposal will not adversely affect any nearby water features (wells, boreholes, springs, streams or ponds) in the area, including licensed and unlicensed abstractions. It is therefore suggested that, at the strategic stage, consideration needs to be given to potential effects on water features and users. Details regarding existing abstractions can be requested from atiteam@naturalresourceswales.gov.uk. • We recommend that the local water authorities are consulted on the proposals to 	<p>the SEA at a strategic level. Detailed modelling and analysis will be undertaken through the EIA process should the draft Plan be adopted. High level mitigation has been proposed within the SEA (e.g. storage / filtration ponds and creation of new reens).</p> <p>Detailed assessment will be undertaken through the EIA, should the draft Plan be adopted, when the requisite detail is available.</p> <p>The necessary detail is not available at the strategic stage to undertake a water features survey or consider licence requirements. An updated water features survey, including consideration of users and licence requirements, will form part of the EIA, should the draft Plan be adopted, when the requisite detail is available.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>ensure the proposals will not impact on public water supplies.</p> <ul style="list-style-type: none"> It is possible that unlicensed abstractions exist within the vicinity, particularly for domestic and/or agricultural use, which we are not necessarily aware of. It is the responsibility of the applicant to locate these abstractions. The locations of private domestic sources may be held by a local authority. <p><i>Water Management: Matters relating to Water Quality</i></p> <ul style="list-style-type: none"> Transport schemes may produce priority hazardous substances such as cadmium, zinc, copper, mineral oils and organic pollutants. The Water Framework Directive (WFD) prevents the deterioration in the status of water bodies. All bodies of surface water and groundwater are to achieve good status by 2015; and discharges of priority hazardous substances (the most toxic substances discharged to waters) must cease by 2020. The Severn River Basin Management Plan (RBMP) requires the restoration and enhancement of water bodies to prevent deterioration and to promote recovery of water bodies. The baseline condition for 'Water Quality' should include both surface and ground waters. <p>The River Usk (tidally influenced) is of moderate ecological status and it is hoped that this River will achieve good ecological status by 2027. You should be aware that a stretch of the Monks Ditch fails WFD standards. Any potential adverse impacts from surface water runoff, which enters the reen system, should be included within this assessment process and, at project level, must be offset. Currently, the groundwater bodies are classified as being good chemical and quantitative status.</p> <p>We recommend, therefore that information is provided in the draft Plan and SEA to explain how this scheme relates to the Water Framework Directive (WFD), which includes WFD objectives, classifications and trends. Given the requirements of the WFD and classification of groundwater bodies, the draft Plan should ensure that it does not have any detrimental effect on the status of water bodies.</p> <p>Where Plans propose projects that are likely to cause deterioration or failure to meet Good</p>	<p>Surface and groundwater quality has been considered at the strategic level within the SEA. High level mitigation measures have been proposed within the relevant documents to promote adherence with the Water Framework Directive (WFD) and environmental designation requirements. Detailed consideration of water management will be included within the EIA, should the draft Plan be adopted, when the requisite detail is available.</p> <p>Noted. This will be considered during the EIA, should a draft Plan be adopted, when the requisite detail is available.</p> <p>Strategic consideration of the WFD has been included within the SEA. A full WFD Assessment will be included within the EIA, should a draft Plan be adopted, when the requisite detail is available. Insufficient detail is available to reach conclusions on WFD</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>Ecological Status/Good Ecological Potential (GES/GEP) then this effect should be identified through SEA. Alternative options or mitigation should also be considered to avoid impacts to WFD objectives.</p> <p>Where a scheme is considered to only have temporary impacts, but there is uncertainty over this judgement, then outcomes should be revisited post-scheme to assess if deterioration or failure to achieve GES/GEP did occur.</p> <p>If unanticipated deterioration or failure to achieve GES/GEP does occur then the following principles should be followed:</p> <ul style="list-style-type: none"> • A plan must be in place and agreed with us for the scheme to be retrospectively mitigated so that the water body is restored to at least the status from which it deteriorated, and/or to address the impact that limits the achievement of GES/GEP; • This plan should set out realistic and feasible programme of measures, costs and commitments in order to address the identified water body impacts. • Surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management (SUDS). SUDS involve a range of techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, green roofs, ponds and wetlands. SUDS offer significant advantages over conventional piped drainage systems in reducing flood risk by attenuating the rate and quantity of surface water run-off from a site, promoting groundwater recharge absorbing diffuse pollutants and improving water quality. Ponds, reedbeds and seasonally flooded grasslands could be particularly attractive features within public open. The variety of SUDS techniques available means that virtually any development should be able to include a scheme based around these principles and also provides multiple benefits, reducing costs and maintenance needs. Wherever possible the use of Sustainable Drainage Systems should be sought, although this may not prove suitable where there is a contamination issue. In addition, opportunities to enhance biodiversity should be sought and incorporated into drainage options. The roles and responsibilities 	<p>condition at this strategic stage.</p> <p>Surface and groundwater quality has been considered at the strategic level within the SEA. High level mitigation measures have been proposed within the relevant documents to promote adherence with the Water Framework Directive (WFD) and environmental designation requirements. Detailed consideration of water management will be included within the EIA, should the draft Plan be adopted, when the requisite detail is available.</p> <p>SUDS techniques have been incorporated as high level mitigation measures within the SEA. Details on SUDS design will be provided with the EIA, should the draft Plan be adopted, when the requisite detail is available. The biodiversity enhancement opportunities presented by adopting SUDS have been recognised within the SEA.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>associated with maintenance matters must also be addressed.</p> <p><i>Matters Relating to Biodiversity</i></p> <ul style="list-style-type: none"> • A transport scheme has the potential to damage biodiversity (species and habitats) though the amount of land-take required for potential routes and mitigation/compensatory measures. • There is also the potential to cause habitat fragmentation, which may cause disruption to green corridors and means of access for mammals (for example, otters and badgers which travel under a road; and bats that fly over a route). • The construction phase may present challenges such as in-channel works which could create potential pollution issues and disruption to migrating fish. It is important that these issues are identified within this assessment process and subsequent to this, appropriate measures devised to mitigate adverse effects on the river and associated aquatic life and 'mobile' species. <p><i>Matters Relating to Contamination</i></p> <ul style="list-style-type: none"> • Transport infrastructure works have the potential to cause harm to soils. Soils and contamination issues should therefore be considered. • We would request that any preliminary risk assessment (PRA) and any subsequent detailed assessment consider the impact on existing sites, including; 	<p>Land-take and subsequent loss of habitat has been considered within the SEA; in addition to biodiversity enhancements and beneficial mitigation.</p> <p>Habitat fragmentation has been considered within the SEA. High level mitigation has been proposed in the SEA; details will be included within the EIA and HRA, should the draft Plan be adopted, when the requisite detail is available.</p> <p>The relevant documents consider in-channel works, where appropriate. High level mitigation has been proposed; detailed mitigation will follow in the EIA and project level Habitats Regulations Assessment (HRA), should the draft Plan be adopted, when the requisite detail is available.</p> <p>Soils and contamination issues have been considered within the SEA; including the potential benefits from remediation.</p> <p>The SEA considers the major landfill</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>i. Areas of landfilling to the south of Llanwern Steelworks</p> <p>ii. Historic Landfills in the area around Newport Docks and the banks of the River Usk.</p> <p>iii. Historic Landfill (the Sloblands) at the Alphasteel site on the east of the Usk.</p> <p>The impact to and from regulated facilities and waste operations should be considered;</p> <p>iv. Docksway Landfill, both the closed Phase 1 and Operational Phase 2. SIMS metals operations in the Docks.</p> <p>v. Llanwern Southside of Queensway Landfill.</p> <p><i>Matters relating to Waste Management</i></p> <ul style="list-style-type: none"> With respect to waste arisings and disposal, we would suggest that a waste management strategy/plan for the proposals is produced and that consideration of waste issues be included within this assessment process. 	<p>sites south of Llanwern Steelworks and the historic and active landfill at Dock's Way. The Alphasteel site would likely be avoided by the highway options; the requisite detail will be available at project level, should the draft Plan be adopted.</p> <p>A detailed contamination assessment would be undertaken through the EIA, should the draft Plan be adopted, when the requisite detail is available. Such an assessment would be designed to identify any currently unrecorded contaminated land. Remediation recommendations would be included where relevant.</p> <p>A waste management plan forms part of the strategic mitigation within the Environmental Report; a detailed plan will be included as part of the EIA, should the draft Plan be adopted, when the requisite detail is available.</p>
Table 3.1	<p>We note from comments made in Section 3.2 of this scoping report that plans, policies and programmes considered for 'review' for the M4 CEM programme correspond to those included within the amended Wales Transport Plan SEA. Given the length of time since the Transport Plan SEA was undertaken, we would recommend the consideration of the following additional PPPs within the review for this assessment.</p> <p><i>All Topics</i></p>	<p>A review of plans, policies and programmes within the SEA was conducted based on the recommendations by NRW.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<ul style="list-style-type: none"> Planning Policy Wales, Edition 5, November 2012 Environment Act 1995 <p><i>Climate Factors and Water</i></p> <ul style="list-style-type: none"> Welsh Government ‘Adapting to Climate Change: Guidance for Flood and Coastal Management Authorities in Wales’, December 2011. <p><i>Water: Matters relating to Water Resources</i></p> <ul style="list-style-type: none"> Water Resources Strategy for England and Wales: ‘Water for People and the Environment’ sets out the long term, strategic framework for the way we believe water resources should be managed to 2050 and beyond. This Strategy describes the pressures on water resources across England and Wales and provides details of what we expect to consider when planning new projects. Water Resources Strategy for Wales.’ (currently in development) This Strategy describes the pressures on water resources in Wales and provides details of what we would expect to be considered when planning new projects. ‘Environment Agency Wales Drought Plan’. This document describes the restrictions on water that could have an impact on a project. <p><i>The above two strategies and plan can be found on the legacy Environment Agency Wales website)</i></p> <ul style="list-style-type: none"> It should also be noted the Usk Catchment Abstraction Management Strategy is currently being updated with the outcomes of the Habitats Directive Review of Consents. The updated Strategy will be made available on our Natural Resources Wales website. This Strategy provides information relating to water availability in the Usk catchment. 	<p>Noted. Added to plans, policies and programmes review.</p> <p>Noted. Not available; to be considered as part of the EIA, should the draft Plan be adopted, when the requisite detail is available.</p> <p>Noted. Added to plans, policies and programmes review.</p> <p>Noted. Not available; to be considered as part of the EIA, should the draft Plan be adopted, when the requisite detail is available.</p> <p>Detailed consideration of the Strategic</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p><i>Water: Matters relating to Flood Risk</i></p> <ul style="list-style-type: none"> • We note that consideration is being given to relevant Local Development Plans (LDPs) and would suggest that this consideration should include reference to their supporting documents in the form of Strategic Flood Consequence Assessments (SFCAs). • Reference should be made to the Newport County Local Flood Risk Management Strategy and to relevant flood and water level management plans in operation in the Gwent Levels. • Flood & Water Management Act 2010 • Flood Risk Regulations 2009 • Water Resources Act 1991 • Land Drainage Act 1994 • Welsh Government National Strategy for Flood & Coastal Erosion Risk Management in Wales November 2011 and its Summary April 2012 • Welsh Government Local Flood Risk Management Strategies; Local Strategy November 2011 • Welsh Government Flood Risk Management; Community Engagement Toolkit October 2011 • Welsh Government Guidance for the Transfer of Ordinary Watercourse Regulatory Powers for Lead Local Flood Authorities in Wales (including the Appendices) February 2012 • Environment Agency - National Coastal Erosion Risk Mapping Project <p><i>Water and Soil - Land affected by Contamination and Groundwater Protection</i></p> <ul style="list-style-type: none"> • 'Guiding Principles for Dealing with Contaminated Land'. The Guiding Principles 	<p>Flood Consequence Assessments (SFCAs) will inform the Flood Consequences Assessment to be undertaken at project level.</p> <p>Detailed consideration of additional flood risk and water level management plans will inform the Flood Consequences Assessment to be undertaken at project level.</p> <p>Considered within the plans, policies and programmes review.</p> <p>Noted. To be considered in development of the contamination assessment as part of the EIA, should</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>are a package of three documents providing generic guidance to help clarify roles and responsibilities; encourage good practice to promote compliance with the requirements, or avoid the need for regulation; guide customers to guidance and advice in other documents.</p> <ul style="list-style-type: none"> Groundwater Protection: Principles and Practice (2012)' which is an update to our previous reference to 'Groundwater Protection: Policy and Practice (2008)'. <p>We would also suggest that you review the above two documents not only at the project implementation level, but also at a strategic level (as part of the SEA) because the principles should be adopted.</p> <p><i>Cultural Heritage</i></p> <p>Reference should be made to the Register of Landscapes of Historic Importance in Wales.</p> <p><i>Landscape and Townscape.</i></p> <p>Reference should be made to the 2007 Tranquillity studies undertaken by the Countryside Council for Wales on behalf of Welsh Government.</p>	<p>the draft Plan be adopted, when the requisite detail is available.</p> <p>Noted. To be considered as part of the EIA, should the draft Plan be adopted, when the requisite detail is available.</p> <p>The generic principles have been adopted by the SEA where relevant.</p> <p>The SEA does reference the Register of Landscapes of Historic Importance in Wales (2nd Edition).</p> <p>Tranquillity has been considered within the SEA Environmental Report. Detailed assessment will be undertaken through the EIA, should the draft Plan be adopted, when the requisite detail is available.</p>
Table 3.2	<p><i>Proposed SEA Objectives</i></p> <p><i>No 1: Minimise transport related air pollution</i></p> <p>We welcome this objective in principle but would recommend it is strengthened to include reference to both air pollution and deposition. The aims and goals should also consider not only air quality next to the existing M4 corridor but include those areas affected by emissions from the M4 corridor (both air quality and deposition). Clarification is required as to what is understood by 'air quality' in this objective (see comments on 1.3.1 and 1.4) and what is meant by 'next to the existing M4'.</p>	<p>We acknowledge that this objective is welcomed in principle. However, insufficient detail is available at the strategic level to assess deposition. High level consideration is given to deposition but without adequate detail available the objective was not changed.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p><i>2B: Adaptation Measures to Climate Change</i></p> <p>We welcome the principle of seeking adaptation measures however, it is suggested that these measures should, in the light of uncertainty and given the proposed routes to the south of Newport, aim to be more than ‘adequate’.</p>	<p>The term ‘adequate’ has been amended to ‘effective’.</p>
4	<p><i>Biodiversity</i></p> <p>Objectives should be strengthened to include consideration of ecological function and connectivity. It is disappointing to note that biodiversity issues have not been included within the M4 Corridor Aims and Goals given that the proposals may offer the opportunity to improve, restore and enhance biodiversity and ecological function.</p>	<p>Maintaining ecological function and connectivity is inherent to protecting, valuing and enhancing biodiversity. These values are considered to be integral to the biodiversity objective and have been considered through the assessment.</p>
7	<p><i>Soils</i></p> <p>See comments above on 1.3.1. It is disappointing to note that soil and soil function issues have not been included within the M4 Corridor ‘Aims and Goals’ given that the proposals may offer the opportunity to improve, restore and enhance the soil resource. We would further recommend that the Objective to ‘reduce transport related contamination and safeguard soil quality and quantity’ be strengthened to account for the potential for development to affect contaminated sites and land affected by historic contamination.</p>	<p>The objective has been updated to include reference to ‘soil function’. Contaminated land is considered within the assessment, in addition to benefits from remediation.</p>
8	<p><i>Transport</i></p> <p>Whilst we agree, in principle with Objective 8, it is suggested that it is strengthened to specifically include both surface and groundwater quality.</p>	<p>Surface and groundwater quality has been added to the objective.</p>
Table 3.3	<p><i>Water</i></p> <p>We would request that the significant effects considered under the heading of ‘water’ be expanded to include both water quantity as well as quality. We would further request that</p>	<p>Insufficient information is available at the strategic level to adequately consider water quantity, or to determine effects on hydrological or</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>‘changes to hydrological regimes’ should be expanded to include changes to both ‘hydrological and hydrogeological regimes’. Pressures on water features as well as water resources should be considered within this assessment process.</p> <p><i>Air Quality</i></p> <p>Clarification is required as to what is meant by ‘project level effects’. Natural Resources Wales would welcome the opportunity to discuss methodologies and parameters for the assessment of air quality and deposition of air borne pollutants associated with the proposals at the earliest possible opportunity.</p> <p><i>Climate Change Adaption</i></p> <p>We request that under the heading of Climate Change Adaption, the impact of the transport infrastructure on flooding to other receptors (i.e. drainage) should also be considered as a (potential) significant effect. We would be interested to know how the Scheme will adapt to the impacts of climate change, a key long term outcome of the Wales Transport Strategy and delivered through the National Transport Plan; including;</p> <ul style="list-style-type: none"> • making transport infrastructure climate proof • Increase flood defences where necessary • Raise awareness about its effects <p>In considering the nature of effects, the consequences of a flood event for the development, over its lifetime, will need to be demonstrated as manageable down to an acceptable level, including its effects on existing development elsewhere.</p> <p>As part of a Flood Consequence Assessment (FCA), the period over which climate change is considered needs to be specified. This is commonly known as the ‘lifetime of development’. We recommend the following timescales are used:</p> <ul style="list-style-type: none"> • Residential dwellings – 100 years (fits within the current PAG and is supported by 	<p>hydrogeological regimes. Detailed assessment will be undertaken through the EIA, should the draft Plan be adopted, when the requisite detail is available. Pressure on water features is considered in the SEA.</p> <p>Detailed monitoring and modelling will be undertaken to inform the EIA process, should the draft Plan be adopted, when the requisite detail is available. NRW will be consulted on methods and parameters as required.</p> <p>Certain high level mitigation measures are presented within the SEA; these consider the climate change effects on drainage and water resources / features.</p> <p>A full flood consequences assessment will be undertaken at project level (in line with NRW advice in Ref. 3.1 above), should the draft Plan be adopted, when the requisite detail is available.</p> <p>Noted. To be addressed at EIA, should the draft Plan be adopted, when the requisite detail is available.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>the PPS25 Practice Guide, Paragraph 3.88),</p> <ul style="list-style-type: none"> • All other development types – 75 years (fits within the current PAG). <p><i>SEA Topic - Soil</i></p> <p>In considering transport effects on soil, we request you to undertake a preliminary risk assessment (PRA), which is agreed with us and allowing a reasonable timescale for review. Any remediation and engineering solutions proposed will need to prevent adverse risks to controlled waters and ecological impacts.</p> <p><i>Dockway Landfill</i></p> <p>The three route options proposed to the South of Newport all have the potential to affect the Dockways Landfill Site. This landfill is regulated by Natural Resources Wales under two Environmental Permits, one for the closed landfill area to the south of the existing A48 southern distributor road and the other for the operational landfill. Any proposals for route alignment and construction within the site's boundaries would present significant engineering challenges and detailed technical assessment at the project level and the requirements to undertake such assessments and remedial engineering works must be considered within this strategic environmental assessment process, including the potential need for alternative landfill facilities.</p> <p>The proposed development could affect many aspects of the management of the closed landfill area and operational land fill area. Potential issues include, but are not limited to, landfill gas collection and use, leachate retention and collection, stability of the existing landfill cells, contamination of local groundwater and the long term effects on the continued operation of the installation and managed enclosure.</p> <p>Similarly, if the proposals require construction work in the vicinity of either landfill site then relevant assessments and consideration will need to be given in respect of local ground conditions that may affect landfill stability.</p>	<p>A preliminary risk assessment will be undertaken to inform the EIA process, should the draft Plan be adopted, when the requisite detail is available. Consultation will be undertaken with NRW once the relevant detail is available.</p> <p>Consideration of the routes in relation to the Dock's Way Landfill site has been addressed in the SEA. Please note the SEA proposes route corridors; a definitive alignment would be determined during EIA, should the draft Plan be adopted. Any engineering or remediation considerations and relevant permitting / consenting procedures will be considered at project level. The preferred strategy may ultimately avoid the landfill site.</p> <p>These detailed issues will be considered through EIA, should the draft Plan be adopted, when the requisite detail is available.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
3.6.1	<p>We would suggest that the term ‘in combination’ relates to the HRA process and is not appropriate in the context of SEA. It is also suggested that, in addition to transport plans, cumulative effects should be considered in relation to plans and programmes which would induce or contribute to increased traffic flow in the area including relevant Local Development Plans.</p> <p><i>SEA Section 3.8 Monitoring of Significant Effects</i></p> <p>We would expect the significant effects identified in the Environmental Report (ER), both positive and negative to be monitored, as required by the SEA Regulations. This is necessary to identify when action should be taken to reduce or offset any potential environmental effects and unseen environmental effects as a result of the Scheme.</p> <p>We also suggest that any monitoring of this Scheme should be linked to high level objectives and targets, which may then act as a catalyst for monitoring of the Gwent Levels at a strategic scale.</p> <p>Annex 2: Scoping Report- Strategic Environmental Assessment: M4 Corridor around Newport. FULL Flood Consequence Assessment FCA).</p>	<p>Reference to ‘in-combination’ assessment in the SEA Scoping Report has been corrected in the SEA Environmental Report.</p> <p>A review of plans, policies and programmes that could have a cumulative effect was undertaken during the SEA.</p> <p>Significant effect monitoring is considered within Section 9 of the Environmental Report.</p> <p>The proposed monitoring regime will be reported in the SEA Statement.</p> <p>A full flood consequences assessment will be undertaken at project level (in line with NRW advice in Ref. 3.1 above), should the draft Plan be adopted, when the requisite detail is available.</p>

Appendix B

SEA Environmental Report: Statutory Consultee Responses

B1 Natural Resources Wales Response to the SEA Environmental Report



Ein cyf/Our ref:
Eich cyf/Your ref:

Maes y Ffynnon
Penrhosgarnedd
BANGOR
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Ebost/Email:
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Ffôn/Phone: 01248 810252

Mr Martin Bates
Project Director
Infrastructure Projects Unit - Transport
Department for Economy, Science and Transport
Welsh Government
Cathay's Park
CARDIFF CF10 3NQ

14 December 2013

Dear Mr Bates,

M4 Corridor around Newport - Strategic Environmental Assessment Environmental Report.

Thank you for giving the Strategic Assessment Team of Natural Resources Wales' Governance Directorate the opportunity to comment on the M4 Corridor around Newport: Strategic Environmental Assessment, Environmental Report. Our comments are made in the context of our responsibilities under the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 and as statutory advisers to Welsh government on the natural heritage and resources of Wales and its coastal waters. It is not the role of the Strategic Assessment Team to comment on the M4 Corridor proposals themselves. These matters will be considered by our South Operations Directorate in a separate response. Our comments on this Environmental Report should however, be read in the context of our response to the scoping stage of this assessment process dated 16th August 2013.

Our specific comments on the report are contained within Annex 1 to this letter. Comments on key issues follow below.

- We are interested to note the assessment makes reference to the construction of bridge piers within the River Usk SAC. This statement suggests some thinking about road and bridge design which has not been shared with us and which prejudices discussions at the design and project stage. Please refer to our comments on the 'Considerations of options for the M4 Corridor around Newport with regard to the Requirements of the Habitats Regulations'.

Maes y Ffynnon • Penrhosgarnedd • BANGOR • Gwynedd • LL57 2DW

Croesewir gohebiaeth yn y Gymraeg a'r Saesneg
Correspondence welcomed in Welsh and English



- We note the statement that 'the main element of the draft Plan is the provision of a three lane motorway...shown as the black route'. As written, this implies that the preferred route has already been 'selected' and that other alternative routes (Red and Purple Routes), and options have been discounted from the draft Plan. Clarification would be welcomed given that the aim of the Strategic Environmental Assessment is to 'inform' the decision making process.
- We welcome the premise that scoping responses have been taken into account in the preparation of this environmental report. Whilst Appendix A includes copies of responses from the statutory consultees, it is noted that responses from other organisations, including the RSPB, have not been included. No commentary has been provided as to how scoping responses have been 'taken into account' within the assessment process and in this environmental report. The Directive requires responses to consultation to be taken into account during the preparation of the plan or programme and before its adoption, and it is therefore suggested that a commentary be produced which shows how consultation responses have been considered within this assessment process.
- In our response letter of 16 August 2013 to the scoping stage of this assessment process, we made the following comments on the proposed SEA objectives. It is disappointing that these suggestions made with regard to objectives do not appear to have been taken into account during this assessment process:
 - We advised that further consideration of both air quality and deposition of pollutants, particularly nitrogen deposition, NOx, SO2, etc. would be required. This suggestion does not appear to have been taken into account during this assessment process.
 - We suggested that the impact of the proposed transport infrastructure on flooding to other receptors (e.g. drainage and hydrological function) should have been considered as a (potential) significant effect within this assessment process. It would also have been useful for this assessment process to consider how the proposals will 'adapt' to the impacts of climate change, including flooding.
 - We recommended that overall tranquility issues should be included within this assessment process, which does not seem to be the case. We would further suggest that noise and vibration should have been considered in the context of biodiversity (and particularly potential effects of noise and vibration on migratory fish species associated with the River Usk).



- We are unable to agree with the assessment's finding of impacts on biodiversity as 'minor negative' and recommend that this is amended to 'major negative', on the basis of the direct and indirect loss of SSSI area from the suite of Gwent Levels SSSIs should the proposals go ahead. At this strategic level, we feel it is premature to be able to state that all impacts could be mitigated. We note that the appraisal carried out as part of the draft Plan consultation document 'M4 Corridor around Newport' concluded a large adverse significance on biodiversity. We refer you to Natural Resources Wales' comments on the draft Plan consultation with particular respect to biodiversity, and would recommend that the two assessment processes should be consistent and reach the same conclusions of 'major negative effects on biodiversity'.
- The SEA process requires the consideration of secondary, cumulative, synergistic, short, medium and long term permanent and temporary, positive and negative effects (Annex 1, f(1)). Clarification would be welcomed as to why the consideration of cumulative effects has only been made in respect of transport plans and the Wales Spatial Plan.

Should you have any queries regarding these comments, please do not hesitate to contact Alison Brown at our Maes y Ffynnon office in Bangor.

Yours sincerely

A handwritten signature in dark ink, appearing to read 'Clive Thomas'.

Clive Thomas
Director of Governance & Communications

www.naturalresourceswales.gov.uk
www.cyfoethnaturiolcymru.gov.uk

Handwritten initials, possibly 'MT', followed by a small circular mark.

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Annex 1:

M4 Corridor around Newport - Strategic Environmental Assessment Environmental Report.

1: Introduction

We note the statement that 'the main element of the draft Plan is the provision of a three lane motorway...shown as the black route'. As written, this implies that the preferred route has already been 'selected' and that other alternative routes (Red and Purple Routes), and options have been discounted from the draft Plan. Clarification would be welcomed given that the aim of the Strategic Environmental Assessment is to 'inform' the decision making process.

We note and welcome the intention to undertake a separate study on proposals for public transport measures. It is disappointing that these public transport issues therefore cannot be included within this assessment process, either in the context of 'reasonable alternatives' or as potential mitigation measures in terms of significant adverse effects.

1.2: We note the reference to congestion during 'weekday peak periods'. Clarification would be welcomed as to whether congestion is restricted to these time periods.

2.5: Reference should be made to the Wales Tranquillity Maps (CCW 2009) which are also available on the Welsh Government website, in the context of a 'sustainable development' indicator.

Section 2.6.2: See comments above on 1: Introduction. This section refers to the public transport measures included within the M4 CEM, and states that they are not included in this draft Plan because WG has now commissioned a separate study into proposals for a SE Wales metro system. We recommend that public transport measures, aimed at reducing traffic use of M4, should look more widely than just a metro system (which may or may not happen anyway), but be extended to cover consideration of initiatives to, for example, transfer freight to rail, buses, existing rail, car share schemes, etc.

3.1.1: We note the intention to 'investigate' a junction strategy in the event that the 'Black Route' is adopted. The intention of the SEA process is to consider the likely significant effects of plan proposals on the environment and it seems inappropriate for an integral part of this plan to be deferred for future 'investigation'. The failure to include junction strategies within the Black Route proposals compromises the ability of this assessment process to consider all the potential significant effects (both positive and negative), at the strategic level.



4.2: We welcome the premise that scoping responses have been taken into account in the preparation of this environmental report. Whilst Appendix A includes copies of responses from the statutory consultees, it is noted that responses from other organisations, including the RSPB, have not been included. No commentary has been provided as to how scoping responses have been 'taken into account' within the assessment process and in this environmental report. The Directive requires responses to consultation to be taken into account **during** the preparation of the plan or programme and before its adoption, and it is therefore suggested that a commentary be produced which shows how consultation responses have been considered within this assessment process.

We would particularly refer you to our scoping response of 16th August 2013, in reference to matters of flood risk, water resources and water quality. Our advice and comments remain relevant at this stage and will also be relevant at future project level.

4.2.1: Reference should be made to 'tranquillity' issues as well as to light pollution. See comments above on 2.5.

4.2.3: Clarification would be welcomed as to how the temporal scope of the assessment process relates to anticipated development, construction and operation phases of the proposals themselves. Given the potentially long lead in time for the proposed works (including the need for appropriate statutory assessments at the project level), it is suggested that the temporal scope and 'short term effects' (0-4 years) in particular, may require adaptation.

Table 5:

In our response to the scoping stage of this assessment process, we made the following suggestions for additional plans and programmes for inclusion in the 'review'.

Climate Factors and Water

- Welsh Government's 'Adapting to Climate Change: Guidance for Flood and Coastal Management Authorities in Wales', December 2011.

Water: Matters relating to Water Resources

- Water Resources Strategy for Wales (currently in development).
- Environment Agency Wales' Drought Plan.

Water: Matters relating to Flood Risk

- Reference should be made to the Newport County Local Flood Risk Management Strategy, and to relevant flood and water level management plans in operation in the Gwent Levels.
- Flood & Water Management Act 2010



- Water Resources Act 1991
- Land Drainage Act 1994
- Environment Agency - National Coastal Erosion Risk Mapping Project

Landscape and Townscape.

- Reference should be made to the 2007 Tranquillity studies undertaken by the Countryside Council for Wales on behalf of Welsh Government.
- Wales' Tranquillity Maps (CCW 2009).

Table 9: Environmental Objectives.

In our response to the scoping stage of this assessment process, we made the following comments on the proposed SEA objectives:

Proposed SEA Objectives**No 1: Minimise transport related air pollution.**

We welcome this objective in principle but would recommend it is strengthened to include reference to both air pollution and deposition. The aims and goals should also consider not only air quality next to the existing M4 corridor but include those areas affected by emissions from any extension to the M4 corridor (both air quality and deposition). Clarification is required as to what is understood by 'air quality' in this objective. We would recommend that air pollution issues are considered in the context of biodiversity as well as humans.

2B: Adaptation Measures to Climate Change.

We welcome the principle of seeking adaptation measures. However, it is suggested that these measures should, in the light of uncertainty and given the proposed routes to the south of Newport, aim to be more than 'adequate'.

4: Biodiversity.

Objectives should be strengthened to include consideration of ecological function and connectivity. It is disappointing to note that biodiversity issues have not been included within the M4 Corridor Aims and Goals given that the proposals may offer the opportunity to improve, restore and enhance biodiversity and ecological function.

7: Soils.

See comments above on 1.3.1. It is disappointing to note that soil and soil function issues have not been included within the M4 Corridor 'Aims and Goals' given that the proposals may offer the opportunity to improve, restore and enhance the soil resource. We would further recommend that the Objective to 'reduce transport related contamination and safeguard soil quality and quantity' be strengthened to account for the potential for development to affect contaminated sites and land affected by historic contamination.

**8: Transport.**

Whilst we agree, in principle, with Objective 8, it is suggested that it is strengthened to specifically include both surface and groundwater quality.

It is disappointing that the suggestions made in our scoping response with regard to objectives do not appear to have been taken into account during this assessment process.

**Table 12:
Air Quality Assessment.**

It does not appear that there has been any consideration of the impact of air quality issues on the habitats and non-human environment of the area.

In our scoping response letter of 16 August 2013 we advised that further consideration of both air quality and deposition of pollutants, particularly nitrogen deposition, NO_x, SO₂, etc. would be required. We reiterate this advice and refer you to the Design Manual for Roads and Bridges for guidance, although we would also recommend that impacts are assessed on relevant designated sites within 200m of the edge, rather than the middle of proposed road routes. We also recommend that any Air Quality Assessment be carried out in accordance with principles outlined in the EA H1 Guidance Annex f, air emissions; and compares the various routes/alternatives and do minimum scenarios against the relevant environmental standards for protecting ecosystems/vegetation/habitats. The principle of using this guidance in relation to proposed road schemes was accepted in relation to the A465, and we would expect it to be used in the context of the M4 proposals.

Climatic Factors- Adaptation Measures.

We would suggest that the impact of the proposed transport infrastructure on flooding to other receptors (e.g. drainage and hydrological function) should have been considered as a (potential) significant effect within this assessment process. It would also have been useful for this assessment process to consider how the proposals will 'adapt' to the impacts of climate change, including flooding. In considering the nature of climate change effects, the consequences of a flood event on the proposed development (over its predicted lifetime) should be demonstrated as 'manageable down to an acceptable level', including any induced effects on existing development, material assets and the environment.

Noise and Vibration.

It is disappointing that overall tranquility issues have not been included within this assessment process, as recommended in our scoping response of 16th August 2013. We would further suggest that noise and vibration should have been considered in the context of biodiversity (and particularly potential effects of noise and vibration on migratory fish



species associated with the River Usk).

Biodiversity, Flora and Fauna.

We are unable to agree with the assessment's finding of impacts on biodiversity as 'minor negative' and recommend that this is amended to 'major negative', on the basis of the direct and indirect loss of SSSI area from the suite of Gwent Levels SSSIs should the proposals go ahead. At this strategic level, we feel it is premature to be able to state that all impacts could be mitigated. We disagree that the scale of loss would be insignificant in the context of the Gwent levels SSSIs as a whole. The proposed route alignments are all situated in the north of the Gwent Levels area, with the potential for any impacts on either water quality or water quantity to be felt throughout the whole drainage system as a result of the water level management of this area. In addition, the barrier that any new road alignment would create has implications for the continued management of both the land and drainage system if beneficial agricultural use becomes unfeasible – management which has traditionally supported the SSSI interest features.

In addition there are other aspects of biodiversity which need to be factored into consideration, including protected species, other nationally and internationally designated sites and local designations and biodiversity.

We are interested to note the assessment makes reference to the construction of bridge piers within the River Usk SAC. This statement suggests some thinking about road and bridge design which has not been shared with us and which prejudices discussions at the design/project stage. Please refer to our comments on the 'Considerations of options for the M4 Corridor around Newport with regard to the Requirements of the Habitats Regulations'.

Soil and Geology - Contamination

We have previously commented on the potential impact of the plans on the Docksway Landfill sites and encouraged further detailed assessment of this issue primarily from an engineering perspective. The full extent of the potential effects will be dependent upon the final choice of route.

From comments made in the Non Technical Summary, the Black Route intends to avoid the active and historic parts of the Docksway Landfill. However, the proximity of the proposed routes to this landfill site may impact on the site's engineering integrity and the ability of the operator to control emissions. Further consideration should be given as to how ground works could affect ground stability of this landfill site, water discharges and gas management. Similar, concerns will apply to the Llanwern (south side of Queensway – Tata) industrial waste landfill and Slobland closed landfill (at Alphasteel).



On a point of clarity, while our scoping response of 16th August 2013 provided details on sites where contamination is known/strongly suspected to be present, these sites should not be taken as an exhaustive list because other sites or areas may be encountered.

We would also advise that the use of the term 'land contamination' should be used in preference to 'Contaminated Land'. The latter is a legal term referring to determined sites under Part IIa of the Environmental Protection Act 1990. We are not aware of any sites relevant to the draft plan or a reasonable alternative that have been determined as 'contaminated land', but would advise that the Local Authority (as the lead regulator for the Contaminated Land regime) should be consulted.

Water

Changes to the hydrological regime are mentioned as a key issue, however this is not considered fully in Table 20 Water Assessment. While we support the comments on runoff and flood risk, the risk of changes in the hydrological regime from a low flow perspective and sedimentation impacts should also have been considered in this assessment process. We would also suggest that for the water topic of this assessment, additional consideration should be given to water quantity in addition to water quality.

No mention appears to be made about additional statutory main rivers other than the Usk, for example, the River Ebbw. Although this watercourse is not designated as a protected ecological site, it is known as a main river.

Although we appreciate that Monks Ditch may have been considered as part of the wider green network, further consideration should be given to this ditch because it is currently failing WFD standards and there may be opportunities to improve its standard.

Material Assets

Clarification is required for the statement that 'long term benefits for the sustainable use of natural resources and energy following the consumption of materials during construction is considered to warrant a minor negative effect'. We would suggest that the aim of the SEA process is to consider the potential effects of a plan on the environment (including material assets) for the purposes of informing the decision making process. 'Trading off' environmental effects against different environmental assets is unlikely to be helpful, and means that the nature and extent of potential environmental effects is unclear. No consideration has been given to the potential induced effects of the proposals on existing material assets e.g. water infrastructure, housing, etc. We are therefore unable to agree with this assessment's 'score' of minor negative for material assets.

In reference to mitigation and/or enhancement measures we note that the waste hierarchy, local sourcing of materials and the administration of a waste management plan are to be



considered further. It is likely that due to historic land contamination that significant volumes of material will be unsuitable for reuse and therefore regard should be given to the safe disposal or treatment of these wastes on or off 'site'.

Cultural Heritage.

We agree with the 'major negative' assessment made in relation to impacts on cultural heritage. We refer specifically to the fact that large sections of any new road considered in the M4 Corridor around Newport, would pass through the designation of the Gwent Levels Landscape of Outstanding Historic Interest in Wales.

Landscape and Townscape

We agree with the 'major negative' assessment made in relation to impacts on landscape and Townscape.

7.2: The SEA process requires the consideration of secondary, cumulative, synergistic, short, medium and long term permanent and temporary, positive and negative effects (Annex 1, f(1)). Clarification would be welcomed as to why the consideration of cumulative effects has only been made in respect of transport plans and the Wales Spatial Plan.

7.4: Limitations

We seek clarification of the first bullet point "Uncertainties were encountered surrounding the following: Uncertainty as to the success in achieving behavioural changes to result in a modal shift to more sustainable modes of travel". As currently written, the point which is trying to be made is unclear and we recommend that it be rewritten and simplified.

We also note that insufficient information is available at this strategic stage to identify and evaluate the risk and extent of contaminated land that the draft Plan, or a reasonable alternative, may cross. Such information would be determined at project level.

Section 8: Mitigation

We note from comments made in Section 8, Mitigation, that additional mitigation and refinement of options will be undertaken at detailed project level. Our view is that any necessary mitigation required should also be based on the resultant outcomes of any surveys, investigations and assessments undertaken for the Plan and/or detailed project level. Further consultation and discussion with Natural Resources Wales would be expected on avoidance and mitigation measures.

B2 Cadw Response to the draft Plan Consultation Document

To: Mr Allan Pitt
Arup
M4 corridor around Newport

From: Denise Harris
Cadw

Date: 13 December 2013

M4 CORRIDOR AROUND NEWPORT – PUBLIC CONSULTATION

Introduction

Welsh Government has published a draft Plan outlining proposals to create a section of new three lane motorway between Junctions 23 and 29 on the south side of Newport. The draft plan was published with associated assessments including the Strategic Environmental Assessment, Habitats Regulations Assessment (HRA), Health Impact Assessment (HIA) and Equality Impact Assessment (EIA). Cadw commented on the Strategic Environmental Assessment on an earlier occasion and it would be inappropriate for Cadw to comment on the HRA, HIA or EqIA assessments. As such, this response focuses solely on the draft Plan.

Cadw's Role

Cadw is the Welsh Government's historic environment service. Although this Welsh Government public consultation requests views on whether to adopt the draft Plan, its reasonable alternatives or the Do Minimum scenario, and with or without amendments, it is considered beyond Cadw's remit to comment on whether to adopt or reject a Welsh Government transport scheme. The content of the consultation is high level and is seeking views on the general proposed corridor routes rather than scheme level specific detail. As such the advice contained within this consultation response is generic rather than specific. It pertains to the wider historic environment in terms of the known and potential historic environment resource, mitigation strategies for the draft Plan and the reasonable alternative routes and their complementary measures, and the impact of consequential works.

The Proposal

The draft Plan to create a section of new three lane motorway between Junctions 23 and 29 on the south side of Newport is known as the Black Route. It also includes complementary measures to re-classify the existing M4 between Magor and Castleton as a trunk road, provide a new single carriageway link between the M48 and B4245, and to promote cycle and walking friendly infrastructure.

The consultation also provides information on two reasonable alternatives to the draft plan and a Do Minimum scenario. The two reasonable alternatives comprise the Red Route dual carriageway and the Purple Route three lane motorway both with their own complementary measures.

The published route is very different from that considered during the 1990s and a great deal of work has been undertaken to investigate, identify and appraise aspects of the historic environment. Such work has informed, and in Cadw's opinion, reduced the historic environment impact of the scheme from its former iterations.

Goals

Section 3.4 of the consultation document focuses on the goals of the M4 Corridor around Newport. It identifies fifteen goals to 'provide a framework to appraise the relative performance at a strategic level of the draft Plan, the reasonable alternatives and the Do Minimum scenario'. None of the published goals relate to the historic environment and it is difficult to test the options without such a goal. In Cadw's opinion the introduction of an historic environment goal would be very beneficial and recommends that the following goal is added in order to appraise impact on the historic environment:

Use design to sensitively mitigate the impact of the scheme on the historic environment and to maximise the opportunities to find out more information about this unique place.

The adoption of the goal formally recognises the key importance of the historic environment at this location and promotes sensitive design solutions. It also recognises that such a significant and invasive scheme will identify previously unknown aspects about the historic environment of this special place. Once new historic environment assets have been recognised the opportunity to find out more about these should be maximised to enhance our understanding of the area and in order to inform management and mitigation strategies.

Similarly, Cadw considers that it would be beneficial to add the scheduled monuments, listed buildings and historic landscapes to Figure 10 so that the major historic environment constraints can be considered alongside the major natural environment constraints.

The Importance of Archaeology

By routing the proposed M4 road south of Newport through the northern part of the Gwent Levels, the proposed motorway would cross an area that is known to be remarkably rich, diverse and extensive in terms of archaeological evidence, both buried and visible. This area comprises the fen edge which would have been a focus for human activity for millennia where the lower lying levels interface with higher ground less prone to flooding. The crossing points on and off the higher ground and the route across the interface are potentially very rich in archaeological remains. Although much good archaeological research and analysis has been undertaken in advance of previous iterations of this scheme and for other purposes, this information needs to be pulled together and gaps identified for further investigation, particularly taking note of the Welsh Archaeological Research Framework. The route would also cross or be located in close proximity to the northern part of the Gwent Levels Registered Historic Landscape of Outstanding Importance.

Welsh Office Circular 60/96 Planning and the Historic Environment: Archaeology sets out advice on legislation and procedures relating to archaeological remains. It states the importance of archaeology and that archaeological remains are a finite, and non-renewable resource, in many cases highly fragile and vulnerable to

damage and destruction. In contrast to much of the natural environment resource, archaeology is typically immobile and cannot recover. As such, the complex evidence cannot usually be mitigated through relocation or recreation.

Mitigation responses are often limited to the preservation of archaeological remains in situ or the preservation of archaeological remains by record. Para 17 states that 'where nationally important archaeological remains, whether scheduled or not, and their settings, are affected by proposed development there should be a presumption in favour of their physical preservation in situ i.e., a presumption against proposals which would have a significant alteration or cause damage, or which would have a significant impact on the setting of visible remains'. Cadw views the maximisation of appropriate preservation in situ as an essential part of the sustainable development focus of this development proposal.

Conversely, preservation by record means archaeological excavation, which means the total destruction of the archaeological evidence. This can be expensive and time-consuming, and should always be regarded as a second best option. On those occasions when preservation by record is the only option, then comprehensive and detailed investigation and recording must be undertaken in accordance with published national standards and guidance.

Comments on the Proposed Routes

There are no legally protected scheduled monuments of national importance along the western section of the proposed route of the motorway between Castleton and Newport on Wentlooge Level, although the Red and Purple Routes come into close proximity to the scheduled monument known as Castell Glas Castle Mound (MM190) south of Maes Ebbw School in Newport. The combined Black, Red and Purple route passes through the northern part of the Gwent Levels Registered Landscape of Outstanding Importance to the south of Coedkernew and Duffryn and would appear to potentially sever and orphan areas of the landscape as a result of bisection by the road. Thought will be required as to how to sensitively mitigate this issue. The routes potentially have a differential impact and the Historic Landscape Character Areas will need to be examined to see which of the various routes most diminishes the impact of the scheme.

The Black, Red and Purple Routes cross the River Usk in the historic Newport Docks area and there is strong potential for the setting of listed buildings to be affected adversely by the over-bridging infrastructure. The Red and Purple Routes pass close to the south of the Transporter Bridge, which historically has been the lowest bridging point of the River Usk. All the proposed routes would establish a bridge lower down the River Usk and impact on views downstream from the Transporter Bridge. Given the discovery of the Newport Ship on the bank of the River Usk in advance of the construction of the Riverfront Arts Centre in 2002 and the significant cost and resourcing of the subsequent excavation and conservation (which is still ongoing) the possibility of a similar occurrence should not be discounted.

To the west of the River Usk the proposed routes converge to the south of the Glan Llyn Development Site and follow a common course to Junction 23. The proposed route will pass to the north of the legally protected scheduled monument of national importance known as Moated Site E of Grangefield Farm (MM205). The impact on the setting of the scheduled monument and the mitigation options need to be carefully considered. The indicated route will also pass in close

proximity to the northern edge of the Gwent Levels Historic Landscape of Outstanding Importance to the south of Llanwern Steelworks and then pass through the registered landscape to the south of Magor. Careful thought will be required to mitigate the impact of the motorway and its infrastructure on the setting of these historic environment assets, particularly the open and relatively unobstructed views across the Gwent Levels historic landscape area.

The proposed course of the motorway will impact on a much wider range of undesignated historic environment assets, including known field systems to the south of the Glan Llyn Development Site and a system of paleochannels around Llandeenny. Whilst many of the shallow lying archaeological features should be relatively easy to identify in advance through routine archaeological prospection, the deeper lying and potentially older and more interesting archaeological features will be more difficult to identify. Similarly, the positioning and impact of new infrastructure with deeper foundations will be more difficult to investigate and evaluate. A competent methodology and mitigation strategy needs to be developed to address this issue.

Impact of the Scheme

Cadw's primary concern is on the extent and scale of the impact of the scheme on the historic environment. Impacts can be measurable or unforeseen, in terms of known and unknown historic environment assets respectively. Cadw recommends a thorough, comprehensive and detailed archaeological prospection and reconnaissance of the route corridor in order to identify as many previously unrecognised historic environment assets as possible. However, given the scale of the proposed scheme in such an archaeologically rich, extensive and diverse area the greatest care and sensitivity should be exercised in choosing the road construction methodology and method in order to diminish adverse impacts. For example the adoption of a 'rolling carpet' technique whereby the archaeological investigation works in advance of the front edge of road construction will identify the shallowly lying archaeology, but will not be able to see or respond to archaeological sites and features lying at deeper levels. Careful thought of the archaeological implications of the chosen construction method is required.

Impact can be direct, comprising physical works, or indirect. The area through which the proposed M4 would be located is known to be remarkably rich in archaeological remains. However, given the buried and usually unknown nature of much of the archaeological resource the direct impact is often hard to predict or establish with confidence in advance. The unpredictable nature of new site discovery can make it hard to plan for and respond to new discoveries. This raises issues concerning which investigative methodologies to adopt and how to resource the approved response in terms of funding and time.

The most significant direct impact will be the construction of the carriageway embankment across the Gwent Levels. The introduction of so much material and weight will have an impact on any underlying archaeology. The issue of the effect of surcharging the land with such weight and the resultant compaction on the underlying archaeology and how it can be mitigated successfully needs to be considered and raises many questions. For example, will the weight of the embankment materially change the buried environment beneath it and if so what will be the effect on the buried archaeology? How can these impacts be investigated? How far do these effects extend beyond the footprint of the embankment?

Other elements of the scheme that may have an impact on historic environment assets include the creation of new related infrastructure such as junctions, bridge and link roads. The impact of natural environment mitigation on the historic environment is also of key importance. If the destruction of a certain length of the reën network requires the creation of an equivalent network of reëns then there is strong potential for there to be an adverse impact on the historic environment. Such a proposal would have a substantial change on the existing pattern of the landscape, compounding the impact of the severance on the historic landscape by the proposed M4 route. This impact may be diminished from an historic environment perspective by bringing back in to use former historic reëns that are currently non-functional. The siting of related infrastructure and mitigation areas require careful thought and consultation with Cadw.

Indirect impacts include those affecting the setting of historic environment assets, for example visual or aural. Adverse visual impacts can be created through interference with views from, to, across and between historic environment assets. Visual juxtapositions and the wider effect of cumulative impacts are also important. Where the proposed route travels through areas with extensive open views, thought should be given to minimising the indirect impacts on adjacent historic environment assets.

The Black, Red and Purple routes follow a common alignment at the east and west ends of the proposed motorway and will share a common suite of impacts in these areas. However, where the routes diverge the impacts of the individual routes will be differential and a methodology is required to assess the impacts and related significance for each proposed route.

The consultation document contains an appraisal for each of the routes and the Do Minimum scenario. The significance of the impact for the heritage criterion is assessed as Moderate adverse for each of the three motorway routes. Cadw agrees with this assessment and appraisal which is based on the current information base, but the risk of the significance of the impact changing to Large adverse as either further investigation or the scheme itself advances is considered by Cadw to be likely.

The brief written assessment for the Black Route's heritage criterion states that the scheduled standing stone at Llanfihangel (Standing Stone 252m South of Bencroft Lane (MM068)) would need to be relocated in order to accommodate the scheme. This is the only direct impact on a scheduled monument identified within the consultation document. The immediate archaeological context of the standing stone has been investigated through excavation and no evidence was identified. Whilst there are precedents for the relocation of standing stones it would be Cadw's preference for the scheduled monument of national importance to remain in its current location. The Grade II listed Magor Vicarage is also identified as needing to be demolished; in this instance Cadw must defer to the Local Planning Authority.

The Do Minimum scenario would result in no or limited impact on the historic environment resource and Cadw concurs with the neutral impact rating.

Conclusion

The proposed M4 Corridor around Newport would, if given the go ahead, cross an area of rich historic environment resource and value. As a flagship Welsh Government transport scheme, the considerations of the complex impacts of the

scheme options on the historic environment need to be at the very centre of Welsh Government's decision making process. Whilst there is an obvious tendency to concentrate on the natural environment impacts of the proposed scheme, in Cadw's opinion the impacts on the historic environment are just as critical and require robust investigation and sensitive design solutions.

B3 Natural England Response to the draft Plan Consultation

Date: 13 December 2013
Our ref: 98538
Your ref: -

Martin Bates
Project Director
Infrastructure Delivery
Transport
BY EMAIL ONLY



Customer Services
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Crewe Business Park
Electra Way
Crewe
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T 0300 060 3900

Dear Mr Bates

**M4 Corridor around Newport ~ Public consultation
Draft Plan with associated Strategic Environmental Assessment (SEA), Habitat Regulations
Assessment (HRA), Health Impact Assessment (HIA) and Equality Impact Assessments
(EqIA)**

Thank you for your consultation on the above dated 20 September 2013 which was received by Natural England on the same date.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

Based on the information provided, Natural England would not expect the proposed works to affect any national or European protected sites within England. We therefore have no comments that we would wish to make at this time.

We are aware that Natural Resources Wales (NRW) is providing advice to the Welsh government on the potential environmental effects of the proposed works; including with respect protected sites and landscapes. Should NRW identify potential effects on designated sites within England, we would be pleased to comment further.

For any queries relating to the specific advice in this letter only please contact Amanda Grundy on 0300 060 145. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

We really value your feedback to help us improve the service we offer. We have attached a feedback form to this letter and welcome any comments you might have about our service.

Yours sincerely

Amanda Grundy
Lead Adviser, Land Use Development Network

Appendix C

SEA Environmental Report: Consideration of Statutory Consultee Responses

C1 Consideration of the Natural Resources Wales Response to the SEA Environmental Report

Table C1: Consideration of the Natural Resources Wales Response to the SEA Environmental Report

Ref.	NRW Comments	Consideration within the Relevant Documents
1: Introduction	<p>We note the statement that ‘the main element of the draft Plan is the provision of a three lane motorway...shown as the black route’. As written, this implies that the preferred route has already been ‘selected’ and that other alternative routes (Red and Purple Routes), and options have been discounted from the draft Plan. Clarification would be welcomed given that the aim of the Strategic Environmental Assessment is to ‘inform’ the decision making process.</p> <p>We note and welcome the intention to undertake a separate study on proposals for public transport measures. It is disappointing that these public transport issues therefore cannot be included within this assessment process, either in the context of ‘reasonable alternatives’ or as potential mitigation measures in terms of significant adverse effects.</p>	<p>The SEA process, as supported by case law, assesses a ‘preferred strategy’ and Reasonable Alternatives that are assessed against the same objectives to evaluate their respective environmental performance. The ‘Black Route’ is the draft Plan and constitutes the Welsh Government’s preferred strategy which is fully assessed alongside the Reasonable Alternatives. This does not prejudge the outcome as any option remains available for adoption. The purpose of the SEA is to assess each option and to identify which, in environmental terms, could be deemed more suitable. The SEA outcomes will be used to inform the decision about whether to adopt the draft Plan.</p> <p>Public transport measures were considered, and consulted upon, within the M4 Corridor Enhancement Measures (CEM) SEA development work, in 2012. This assessment concluded that the public transport measures could not deliver the plan objectives and therefore could not constitute a Reasonable Alternative.</p> <p>The proposed Cardiff Capital Region Metro study is at an early stage and there is limited information available about its associated schemes and programme; e.g. no data regarding potential modal shift. In light that the Cardiff Capital Region Metro is not a committed scheme, and may not be taken forward as indicated in the NRW response to 2.6.2, it does not inform the SEA. Information on how the impacts of public transport, including the Cardiff Capital Region Metro, have been considered as part of the development of the draft Plan is provided within the M4 CEM Public Transport Overview Update, available at www.m4cem.com.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
		It is considered that the draft Plan would complement investment in regional public transport services and facilities.
1.2	We note the reference to congestion during ‘weekday peak periods’. Clarification would be welcomed as to whether congestion is restricted to these time periods.	The baseline congestion data is supplied in the relevant documents within the WelTAG Stage 1 (Strategy Level) Appraisal report.
2.5	Reference should be made to the Wales Tranquillity Maps (CCW 2009) which are also available on the Welsh Government website, in the context of a ‘sustainable development’ indicator.	Although the maps are not referenced, tranquillity was considered within the SEA assessment within Table 23: Landscape and Townscape. The Wales Tranquillity Maps will be considered during scheme development.
2.6.2	See comments above on 1: Introduction. This section refers to the public transport measures included within the M4 CEM, and states that they are not included in this draft Plan because WG has now commissioned a separate study into proposals for a SE Wales metro system. We recommend that public transport measures, aimed at reducing traffic use of M4, should look more widely than just a metro system (which may or may not happen anyway), but be extended to cover consideration of initiatives to, for example, transfer freight to rail, buses, existing rail, car share schemes, etc.	<p>See response to 1: Introduction above.</p> <p>The M4 CEM Programme assessed wider consideration of public transport systems than just the Cardiff Capital Region Metro study. Further information is provided within the M4 CEM Public Transport Overview Update, available at www.m4cem.com.</p> <p>The M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) report and M4 CEM WelTAG Stage 1 (Strategy Level) report explains in more detail why public transport measures are progressed separately and not as part of the draft Plan for the M4 Corridor around Newport.</p> <p>The draft Plan and its Reasonable Alternatives include walking and cycling initiatives, which would complement access to public transport services and facilities.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
3.1.1	<p>We note the intention to ‘investigate’ a junction strategy in the event that the ‘Black Route’ is adopted. The intention of the SEA process is to consider the likely significant effects of plan proposals on the environment and it seems inappropriate for an integral part of this plan to be deferred for future ‘investigation’. The failure to include junction strategies within the Black Route proposals compromises the ability of this assessment process to consider all the potential significant effects (both positive and negative), at the strategic level.</p>	<p>It is not possible to present a junction strategy at this strategy stage of assessment. The details required to implement a junction strategy are only available following project level assessment and focused consultation.</p> <p>To undertake this project level assessment for three alignments could be abortive and would be costly.</p> <p>Environmental assessment of any junction strategy will be undertaken at the EIA stage, should the draft Plan be adopted, when sufficient detail is available to assess any effects.</p>
4.2	<p>We welcome the premise that scoping responses have been taken into account in the preparation of this environmental report. Whilst Appendix A includes copies of responses from the statutory consultees, it is noted that responses from other organisations, including the RSPB, have not been included. No commentary has been provided as to how scoping responses have been ‘taken into account’ within the assessment process and in this environmental report. The Directive requires responses to consultation to be taken into account during the preparation of the plan or programme and before its adoption, and it is therefore suggested that a commentary be produced which shows how consultation responses have been considered within this assessment process.</p> <p>We would particularly refer you to our scoping response of 16th August 2013, in reference to matters of flood risk, water resources and water quality. Our advice and comments remain relevant at this stage and will also be relevant at future project level.</p>	<p>Relevant comments and suggestions made at the scoping stage have been integrated into the preparation of the draft Plan and the SEA Environmental Report.</p> <p>Consultation on the scoping report is only required with statutory consultees, hence only their responses were included within the Environmental Report. Any non-statutory responses from other organisations as part of the scoping process have been considered in the preparation of the SEA Environmental Report.</p> <p>Comments within the Scoping Report on flood risk, water resources and water quality were considered within the Environmental Report where sufficient detail was available to inform the requested assessments; many of which can only be undertaken at project level when the requisite detail is available.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
4.2.1	Reference should be made to ‘tranquillity’ issues as well as to light pollution. See comments above on 2.5.	Tranquillity was considered within Table 23: Landscape and Townscape. See response to comment 2.5.
4.2.3	Clarification would be welcomed as to how the temporal scope of the assessment process relates to anticipated development, construction and operation phases of the proposals themselves. Given the potentially long lead in time for the proposed works (including the need for appropriate statutory assessments at the project level), it is suggested that the temporal scope and ‘short term effects’ (0-4 years) in particular, may require adaptation.	The short-term effects were proposed to encapsulate the anticipated construction period. The long lead-in time to undertake statutory assessments are not considered likely to pose significant environmental effects and can take place irrespective of the SEA outcome. The temporal scope is considered appropriate.
Table 5	<p>In our response to the scoping stage of this assessment process, we made the following suggestions for additional plans and programmes for inclusion in the ‘review.</p> <p>Climate Factors and Water</p> <p>Welsh Government’s ‘Adapting to Climate Change: Guidance for Flood and Coastal Management Authorities in Wales’, December 2011.</p> <p>Water: Matters relating to Water Resources</p> <p>Water Resources Strategy for Wales (currently in development).</p> <p>Environment Agency Wales’ Drought Plan.</p> <p>Water: Matters relating to Flood Risk</p> <p>Reference should be made to the Newport County Local Flood Risk Management Strategy, and to relevant flood and water level management plans in operation in the Gwent Levels.</p>	<p>The majority of suggested plans and programmes were included within the Environmental Report. A number of suggestions were in preparation and were either not finalised or unavailable for inclusion within the report; such as the Water Resources Strategy for Wales (currently in preparation).</p> <p>The remaining reports were considered within the assessment and will be considered in greater detail at the detailed design and EIA stage should the draft Plan be adopted.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>Flood & Water Management Act 2010</p> <p>Water Resources Act 1991</p> <p>Land Drainage Act 1994</p> <p>Environment Agency - National Coastal Erosion Risk Mapping Project</p> <p>Landscape and Townscape.</p> <p>Reference should be made to the 2007 Tranquillity studies undertaken by the Countryside Council for Wales on behalf of Welsh Government.</p> <p>Wales' Tranquillity Maps (CCW 2009).</p>	
<p>Table 9: Proposed SEA Objectives</p>	<p>In our response to the scoping stage of this assessment process, we made the following comments on the proposed SEA objectives.</p> <p>It is disappointing that the suggestions made in our scoping response with regard to objectives do not appear to have been taken into account during this assessment process.</p>	<p>Where appropriate, suggestions have been addressed with amendments to SEA objectives. Details are outlined below against each of the suggestions for SEA objectives.</p> <p>All suggestions made by NRW in response to the Scoping Report have been taken into account in the Environmental Report; as described below.</p>
<p>Proposed SEA Objectives</p>	<p>No 1: Minimise transport related air pollution</p> <p>We welcome this objective in principle but would recommend it is strengthened to include reference to both air pollution and deposition. The aims and goals should also consider not only air quality next to the existing M4 corridor but include those areas affected by emissions from any extension to the M4 corridor (both air quality and deposition). Clarification is required as to what is understood by 'air quality' in this objective. We would recommend that air pollution issues are</p>	<p>We acknowledge that this objective is welcomed in principle. However, insufficient detail is available at the strategic level to assess deposition. High level consideration is given to deposition but without adequate detail available the objective was not changed.</p> <p>Air quality was considered with respect to population and biodiversity. Air quality effects were assessed within Table 16: Biodiversity.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	considered in the context of biodiversity as well as humans.	
Proposed SEA Objectives	<p>2B: Adaptation Measures to Climate Change</p> <p>We welcome the principle of seeking adaptation measures. However, it is suggested that these measures should, in the light of uncertainty and given the proposed routes to the south of Newport, aim to be more than ‘adequate’.</p>	<p>The environmental objective uses the term ‘effective’ rather than ‘adequate’. This change was made in response to NRW comments on the Scoping Report.</p> <p>Environmental objective 2B is copied here for clarity: ‘Ensure that effective adaptation measures to climate change are in place’.</p>
Proposed SEA Objectives	<p>4: Biodiversity</p> <p>Objectives should be strengthened to include consideration of ecological function and connectivity. It is disappointing to note that biodiversity issues have not been included within the M4 Corridor Aims and Goals given that the proposals may offer the opportunity to improve, restore and enhance biodiversity and ecological function.</p>	<p>Maintaining ecological function and connectivity is inherent to protecting, valuing and enhancing biodiversity. These values are considered to be integral to the biodiversity objective and have been considered through the assessment.</p>
Proposed SEA Objectives	<p>7: Soils</p> <p>See comments above on 1.3.1. It is disappointing to note that soil and soil function issues have not been included within the M4 Corridor ‘Aims and Goals’ given that the proposals may offer the opportunity to improve, restore and enhance the soil resource. We would further recommend that the Objective to ‘reduce transport related contamination and safeguard soil quality and quantity’ be strengthened to account for the potential for development to affect contaminated sites and land affected by historic contamination.</p>	<p>We welcome acknowledgement that the draft Plan offers opportunities to ‘improve, restore and enhance the soil resource’.</p> <p>The environmental objective also includes reference to soil function in accordance with NRW comments on the Scoping Report.</p> <p>Environmental objective 7 is copied here for clarity: ‘Reduce transport related contamination and safeguard soil function, quality and quantity’.</p> <p>Contaminated land is considered within Table 19: Soil and Geology, in addition to benefits from remediation.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
Proposed SEA Objectives	<p>8: Transport</p> <p>Whilst we agree, in principle, with Objective 8, it is suggested that it is strengthened to specifically include both surface and groundwater quality.</p> <p>It is disappointing that the suggestions made in our scoping response with regard to objectives do not appear to have been taken into account during this assessment process.</p>	<p>Reference to surface water and groundwater is included within environmental objective 8. This change was made in response to NRW comments on the Scoping Report.</p> <p>Environmental objective 8 in the Environmental Report is as follows: ‘Minimise transport related effects on surface and groundwater quality, flood plains and areas of flood risk’.</p> <p>All suggestions made by NRW in response to the Scoping Report have been taken into account in the Environmental Report.</p>
Table 12	<p>Air Quality Assessment</p> <p>It does not appear that there has been any consideration of the impact of air quality issues on the habitats and non-human environment of the area.</p> <p>In our scoping response letter of 16 August 2013 we advised that further consideration of both air quality and deposition of pollutants, particularly nitrogen deposition, NOx, SO2, etc. would be required. We reiterate this advice and refer you to the Design Manual for Roads and Bridges for guidance, although we would also recommend that impacts are assessed on relevant designated sites within 200m of the edge, rather than the middle of proposed road routes. We also recommend that any Air Quality Assessment be carried out in accordance with principles outlined in the EA H1 Guidance Annex f, air emissions; and compares the various routes/alternatives and do minimum scenarios against the relevant environmental standards for protecting ecosystems/vegetation/habitats. The principle of using this guidance in relation to proposed road schemes was accepted in relation to the A465, and we would</p>	<p>Air quality effects on habitats are considered within Table 16: Biodiversity.</p> <p>See response to Table 9 (1) above. At the strategic stage there is insufficient detail to evaluate deposition rates.</p> <p>The current alignments are corridors and therefore do not have defined ‘edges’; this detail will only be available at project level.</p> <p>Assessment in accordance with the EA H1 guidance Annex F, air emissions will be undertaken at project level as part of any EIA when the requisite detail is available; as per the A465.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	expect it to be used in the context of the M4 proposals.	
Table 14	<p>Climatic Factors - Adaptation Measures.</p> <p>We would suggest that the impact of the proposed transport infrastructure on flooding to other receptors (e.g. drainage and hydrological function) should have been considered as a (potential) significant effect within this assessment process. It would also have been useful for this assessment process to consider how the proposals will 'adapt' to the impacts of climate change, including flooding. In considering the nature of climate change effects, the consequences of a flood event on the proposed development (over its predicted lifetime) should be demonstrated as 'manageable down to an acceptable level', including any induced effects on existing development, material assets and the environment.</p>	<p>Water treatment areas acting as attenuation ponds were proposed in Table 14 as mitigation for climate change effects with the aim to preserve hydrological function and promote effective drainage. This measure was discussed further within Table: Biodiversity 16 and Table 20: Water.</p> <p>Climate change adaptation proposals were integrated into the SEA assessment, rather than provision of reactive adaptation at a later date.</p> <p>At the strategic level, without detailed design, it is not possible to undertake a flood consequences assessment. Once the requisite detail is available at the project level a flood consequences assessment will be undertaken to inform any EIA.</p>
Table 15	<p>Noise and Vibration.</p> <p>It is disappointing that overall tranquillity issues have not been included within this assessment process, as recommended in our scoping response of 16th August 2013.</p> <p>We would further suggest that noise and vibration should have been considered in the context of biodiversity (and particularly potential effects of noise and vibration on migratory fish species associated with the River Usk).</p>	<p>Insufficient information is available at this stage to evaluate any loss in tranquillity beyond that concluded in Table 23: Landscape and Townscape.</p> <p>Noise and vibration effects on biodiversity were assessed in Table 16: Biodiversity. Further detailed assessment on features of the River Usk was reported within the associated Consideration of the options in relation to the requirements to the Habitats Regulations report and summarised in Table 16: Biodiversity.</p>
Table 16	<p>Biodiversity, Flora and Fauna.</p> <p>We are unable to agree with the assessment's finding of impacts on biodiversity as 'minor negative' and recommend</p>	<p>SEA is an iterative process. The WelTAG Stage 1 (Strategy Level) Appraisal concluded major negative effect on biodiversity in the absence of mitigation measures. To address the 'major negative effect', additional mitigation measures</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>that this is amended to ‘major negative’, on the basis of the direct and indirect loss of SSSI area from the suite of Gwent Levels SSSIs should the proposals go ahead. At this strategic level, we feel it is premature to be able to state that all impacts could be mitigated. We disagree that the scale of loss would be insignificant in the context of the Gwent levels SSSIs as a whole. The proposed route alignments are all situated in the north of the Gwent Levels area, with the potential for any impacts on either water quality or water quantity to be felt throughout the whole drainage system as a result of the water level management of this area.</p> <p>In addition, the barrier that any new road alignment would create has implications for the continued management of both the land and drainage system if beneficial agricultural use becomes unfeasible – management which has traditionally supported the SSSI interest features.</p> <p>In addition there are other aspects of biodiversity which need to be factored into consideration, including protected species, other nationally and internationally designated sites and local designations and biodiversity.</p> <p>We are interested to note the assessment makes reference to the construction of bridge piers within the River Usk SAC. This statement suggests some thinking about road and bridge design which has not been shared with us and which prejudices discussions at the design/project stage. Please refer to our comments on the ‘Considerations of options for the M4 Corridor around Newport with regard to the Requirements of the Habitats Regulations’.</p>	<p>were included within the Environment Report; these are discussed within Table 16: Biodiversity and Section 8. At strategy level it is not possible to conclude that all effects could be fully mitigated; however, following incorporation of significant additional mitigation measures it is considered that the minor negative conclusion is reasonable.</p> <p>Development of the draft Plan aimed to avoid SSSI from the outset; this has been achieved where feasible by aligning routes through SSSI land that has already been developed or has been allocated for development. Development on the allocated land has previously been agreed with NRW (previously CCW) through development of the Newport UDP. Where avoidance was not possible the options are aligned adjacent to developed or allocated land to reduce fragmentation of habitats.</p> <p>Although the route traverses SSSI land the protected features are limited to the reen network. Table 16: Biodiversity states that any loss of reen would be offset through the creation of new reens; additional lengths of reen would also be provided, if required, to act as enhancement.</p> <p>Mitigation for water quality and quantity are addressed within Table 20: Water of the Environmental Report.</p> <p>The final road alignment may prohibit access to manage parts of the reen network. Any loss through this mechanism would be offset by the construction of new reen or provision of alternative access.</p> <p>Effects on wider habitats and species were considered in Table 16: Biodiversity. Detailed assessment of such specific effects is only possible at project level when the requisite survey and design detail is available.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
		<p>The level of the assessment has been limited based on the indicative information available at the plan stage. For example information such as areas of land-take, resource requirements or the design of bridge structures has not been developed in any detail.</p> <p>The SEA Environmental Report and Consideration of the options in relation to the requirements to the Habitats Regulations report assessed the worst-case of bridge piers being located within the River Usk SAC on a precautionary basis. Table 20: Water of the SEA Environmental Report also indicates that bridge piers may or may not be within the river and that this would be confirmed at project level when the requisite detail is available.</p>
Table 19	<p>Soil and Geology - Contamination</p> <p>We have previously commented on the potential impact of the plans on the Docksway Landfill sites and encouraged further detailed assessment of this issue primarily from an engineering perspective. The full extent of the potential effects will be dependent upon the final choice of route.</p> <p>From comments made in the Non-Technical Summary, the Black Route intends to avoid the active and historic parts of the Docksway Landfill. However, the proximity of the proposed routes to this landfill site may impact on the site's engineering integrity and the ability of the operator to control emissions. Further consideration should be given as to how ground works could affect ground stability of this landfill site, water discharges and gas management. Similar concerns will apply to the Llanwern (south side of Queensway – Tata) industrial waste landfill and Slobland closed landfill (at Alphasteel).</p>	<p>An engineering assessment of contaminated land where required throughout any adopted route will be undertaken at the project level should the draft Plan be adopted in accordance with the EIA process when the requisite detail is available. Furthermore, we agree with the NRW comment in reference to Section 7.4: Limitations, which states: <i>'we also note that insufficient information is available at this strategic stage to identify and evaluate the risk and extent of contaminated land that the draft Plan, or a Reasonable Alternative, may cross. Such information would be determined at project level'</i>.</p> <p>Any reference to 'contaminated land' will be amended to 'land contamination' within subsequent reports in preference to contaminated land; unless the land in question has been determined under Part IIa of the Environmental Protection Act 1990.</p> <p>We are pleased to note that NRW are not aware of any determined contaminated land sites that may be affected by the</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	<p>On a point of clarity, while our scoping response of 16th August 2013 provided details on sites where contamination is known/strongly suspected to be present, these sites should not be taken as an exhaustive list because other sites or areas may be encountered.</p> <p>We would also advise that the use of the term ‘land contamination’ should be used in preference to ‘Contaminated Land’. The latter is a legal term referring to determined sites under Part IIa of the Environmental Protection Act 1990. We are not aware of any sites relevant to the draft plan or a reasonable alternative that have been determined as ‘contaminated land’, but would advise that the Local Authority (as the lead regulator for the Contaminated Land regime) should be consulted.</p>	draft Plan.
Table 20	<p>Water</p> <p>Changes to the hydrological regime are mentioned as a key issue, however this is not considered fully in Table 20 Water Assessment. While we support the comments on runoff and flood risk, the risk of changes in the hydrological regime from a low flow perspective and sedimentation impacts should also have been considered in this assessment process. We would also suggest that for the water topic of this assessment, additional consideration should be given to water quantity in addition to water quality.</p> <p>No mention appears to be made about additional statutory main rivers other than the Usk, for example, the River Ebbw. Although this watercourse is not designated as a protected ecological site, it is known as a main river.</p> <p>Although we appreciate that Monks Ditch may have been</p>	<p>Adoption of plainly established and uncontroversial mitigation measures in compliance with EA/NRW and industry best practice (e.g. CIRIA, PPG, etc.) provides sufficient confidence to avoid the risk of sedimentation impacts.</p> <p>A lack of detail precluded adequate evaluation of potential changes in water quantity. Table 20: Water did commit to subsequent work ensuring compliance with the Water Framework Directive. This requires consideration of all waterbodies, including main rivers, and considers potential changes in water quantity. Full consideration of any changes to the hydrological regime will be considered at project level through the EIA and HRA processes as required when the requisite detail is available, should a draft Plan be adopted. At low flow periods the additional storage within the attenuation ponds may provide benefits to the reen network allowing enhanced water level management.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
	considered as part of the wider green network, further consideration should be given to this ditch because it is currently failing WFD standards and there may be opportunities to improve its standard.	Potential opportunities to improve the standards of reens were provided within the assessment; potential opportunities for individual waterbodies will be investigated at project level when the requisite detail is available.
Table 21	<p>Material Assets</p> <p>Clarification is required for the statement that ‘long term benefits for the sustainable use of natural resources and energy following the consumption of materials during construction is considered to warrant a minor negative effect’. We would suggest that the aim of the SEA process is to consider the potential effects of a plan on the environment (including material assets) for the purposes of informing the decision making process. ‘Trading off’ environmental effects against different environmental assets is unlikely to be helpful, and means that the nature and extent of potential environmental effects is unclear. No consideration has been given to the potential induced effects of the proposals on existing material assets e.g. water infrastructure, housing, etc. We are therefore unable to agree with this assessment’s ‘score’ of minor negative for material assets.</p> <p>In reference to mitigation and/or enhancement measures we note that the waste hierarchy, local sourcing of materials and the administration of a waste management plan are to be considered further. It is likely that due to historic land contamination that significant volumes of material will be unsuitable for reuse and therefore regard should be given to the safe disposal or treatment of these wastes on or off ‘site’.</p>	<p>In line with the environmental objective of: ‘prudent and sustainable use of natural resources and energy’, the intensive use of energy during the construction phase was considered to be offset by the long-term energy savings of a modern highway.</p> <p>Water infrastructure is considered within Table 20: Water where replacement reens are proposed to offset and enhance any losses. This contains a commitment to construct new reens to appropriate standards.</p> <p>Social effects, e.g. housing, are assessed in the relevant documents; M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Appraisal. The draft Plan and Reasonable Alternatives aimed to avoid residential and other development as far as possible.</p> <p>Due consideration will be given to land contamination and application of the waste hierarchy during the EIA process should the draft Plan be adopted.</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
Table 22	<p>Cultural Heritage.</p> <p>We agree with the ‘major negative’ assessment made in relation to impacts on cultural heritage. We refer specifically to the fact that large sections of any new road considered in the M4 Corridor around Newport, would pass through the designation of the Gwent Levels Landscape of Outstanding Historic Interest in Wales.</p>	<p>Noted. The Gwent Levels Landscape of Outstanding Historic Interest in Wales is noted within the Table 22 assessment.</p> <p>A major negative effect was concluded based on the fact that the requisite level of detail is not available at this strategic stage to determine otherwise; consequently, the worst-case was assumed.</p> <p>Cultural heritage will be assessed in detail during the EIA process, should the draft Plan be adopted, when the requisite detail is available to accurately determine potential effects.</p>
Table 12	<p>Landscape and Townscape</p> <p>We agree with the ‘major negative’ assessment made in relation to impacts on landscape and Townscape.</p>	<p>Noted.</p> <p>A major negative effect was concluded based on the fact that the requisite level of detail is not available at this strategic stage to determine otherwise; consequently, the worst-case was assumed.</p> <p>Landscape and Townscape will be assessed in detail during the EIA process, should the draft Plan be adopted, when the requisite detail is available to accurately determine potential effects.</p>
7.2	<p>The SEA process requires the consideration of secondary, cumulative, synergistic, short, medium and long term permanent and temporary, positive and negative effects (Annex 1, f(1)). Clarification would be welcomed as to why the consideration of cumulative effects has only been made in respect of transport plans and the Wales Spatial Plan.</p>	<p>The Scoping Report identified, and consulted on, the plans and programmes proposed for cumulative assessment within the Environmental Report. The process followed complies with best practice in assessing the cumulative impacts of the most relevant plans and programmes rather than all identified plans.</p> <p>National and Regional plans were considered more relevant to a draft Plan that would operate at a regional level and be of national importance. Equally, the detail within these plans was</p>

Ref.	NRW Comments	Consideration within the Relevant Documents
		considered appropriate to the level of detail within the draft Plan.
7.4	<p>Limitations</p> <p>We seek clarification of the first bullet point “Uncertainties were encountered surrounding the following: Uncertainty as to the success in achieving behavioural changes to result in a modal shift to more sustainable modes of travel”. As currently written, the point which is trying to be made is unclear and we recommend that it be rewritten and simplified.</p> <p>We also note that insufficient information is available at this strategic stage to identify and evaluate the risk and extent of contaminated land that the draft Plan, or a reasonable alternative, may cross. Such information would be determined at project level.</p>	<p>This point will be clarified in the SEA Statement; it relates to the potential uptake of public transport measures. Forecasting likely change in modal shift is inherently uncertain and will remain a limitation to future assessments.</p> <p>Agreed.</p>
8	<p>Mitigation</p> <p>We note from comments made in Section 8, Mitigation, that additional mitigation and refinement of options will be undertaken at detailed project level. Our view is that any necessary mitigation required should also be based on the resultant outcomes of any surveys, investigations and assessments undertaken for the Plan and/or detailed project level. Further consultation and discussion with Natural Resources Wales would be expected on avoidance and mitigation measures.</p>	<p>Proposed mitigation is outlined in the Environmental Report, with mitigation measures committed to within the SEA Statement. Beyond this any additional mitigation identified through any subsequent EIA and HRA processes would be integrated into the project in discussion with NRW.</p>

C2 Consideration of the Cadw Response to the draft Plan Consultation Document

Table C2: Consideration of the Cadw Response to the draft Plan Consultation Document

Theme / Topic	Cadw Comments (on the draft Plan Consultation Document)	Consideration within the Relevant Documents
Introduction	<p>Welsh Government has published a draft Plan outlining proposals to create a section of new three lane motorway between Junctions 23 and 29 on the south side of Newport. The draft plan was published with associated assessments including the Strategic Environmental Assessment, Habitats Regulations Assessment (HRA), Health Impact Assessment (HIA) and Equality Impact Assessment (EqIA). Cadw commented on the Strategic Environmental Assessment on an earlier occasion and it would be inappropriate for Cadw to comment on the HRA, HIA or EqIA assessments. As such, this response focuses solely on the draft Plan.</p>	<p>Cadw are the Welsh Government's statutory historic environment advisors on SEA. Cadw provided a scoping opinion on the M4 Corridor around Newport Scoping Report and on the development work to inform a draft Plan. No response has been received from Cadw in relation to the M4 Corridor around Newport SEA Environmental Report.</p> <p>The Consultation Document provides a summary of the draft Plan for public consultation purposes, relevant details were provided in the M4 Corridor around Newport SEA Environmental Report.</p>
Cadw's Role	<p>Cadw is the Welsh Government's historic environment service. Although this Welsh Government public consultation requests views on whether to adopt the draft Plan, its reasonable alternatives or the Do Minimum scenario, and with or without amendments, it is considered beyond Cadw's remit to comment on whether to adopt or reject a Welsh Government transport scheme. The content of the consultation is high level and is seeking views on the general proposed corridor routes rather than scheme level specific detail. As such the advice contained within this consultation response is generic rather than specific. It pertains to the wider historic environment in terms of the known and potential historic environment resource, mitigation strategies for the draft Plan and the reasonable alternative routes and their complementary measures, and the impact of consequential works.</p>	<p>Noted.</p>

Theme / Topic	Cadw Comments (on the draft Plan Consultation Document)	Consideration within the Relevant Documents
The Proposal	<p>The draft Plan to create a section of new three lane motorway between Junctions 23 and 29 on the south side of Newport is known as the Black Route. It also includes complementary measures to re-classify the existing M4 between Magor and Castleton as a trunk road, provide a new single carriageway link between the M48 and B4245, and to promote cycle and walking friendly infrastructure.</p> <p>The consultation also provides information on two reasonable alternatives to the draft plan and a Do Minimum scenario. The two reasonable alternatives comprise the Red Route dual carriageway and the Purple Route three lane motorway both with their own complementary measures.</p> <p>The published route is very different from that considered during the 1990s and a great deal of work has been undertaken to investigate, identify and appraise aspects of the historic environment. Such work has informed, and in Cadw's opinion, reduced the historic environment impact of the scheme from its former iterations.</p>	<p>Noted. Response acknowledging the '<i>great deal of work...undertaken to investigate, identify and appraise aspects of the historic environment... has informed, and in Cadw's opinion, reduced the historic environment impact of the scheme from its former iterations</i>'.</p>
Goals (transport planning objectives)	<p>Section 3.4 of the consultation document focuses on the goals of the M4 Corridor around Newport. It identifies fifteen goals to 'provide a framework to appraise the relative performance at a strategic level of the draft Plan, the reasonable alternatives and the Do Minimum scenario'. None of the published goals relate to the historic environment and it is difficult to test the options without such a goal. In Cadw's opinion the introduction of an historic environment goal would be very beneficial and recommends that the following goal is added in order to appraise impact on the historic environment:</p> <p><i>Use design to sensitively mitigate the impact of the scheme on the</i></p>	<p>The SEA Environmental Report included cultural heritage as a primary environmental objective; this was as follows:</p> <p><i>'Ensure that diversity, local distinctiveness and cultural heritage are valued, protected, celebrated and enhanced'</i>.</p> <p>Assessment against this objective included consideration of the historic environment. Further detailed assessment will be undertaken during the EIA, should the draft Plan be adopted, when the requisite</p>

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	<p><i>historic environment and to maximise the opportunities to find out more information about this unique place.</i></p> <p>The adoption of the goal formally recognises the key importance of the historic environment at this location and promotes sensitive design solutions. It also recognises that such a significant and invasive scheme will identify previously unknown aspects about the historic environment of this special place. Once new historic environment assets have been recognised the opportunity to find out more about these should be maximised to enhance our understanding of the area and in order to inform management and mitigation strategies.</p> <p>Similarly, Cadw considers that it would be beneficial to add the scheduled monuments, listed buildings and historic landscapes to Figure 10 so that the major historic environment constraints can be considered alongside the major natural environment constraints.</p>	<p>detail is available. Liaison will be undertaken with Cadw and relevant bodies on the scope and results of any surveys.</p> <p>Constraints mapping, including consideration of scheduled monuments, listed buildings and historic landscapes, informed the development of the draft Plan.</p> <p>At scheme level the strategic corridor will be narrowed to a determined alignment, along with any ancillary infrastructure. Constraints mapping, including known historic assets and any new assets determined by project-level studies, will inform development of the design.</p>
The Importance of Archaeology	<p>By routing the proposed M4 road south of Newport through the northern part of the Gwent Levels, the proposed motorway would cross an area that is known to be remarkably rich, diverse and extensive in terms of archaeological evidence, both buried and visible. This area comprises the fen edge which would have been a focus for human activity for millennia where the lower lying levels interface with higher ground less prone to flooding. The crossing points on and off the higher ground and the route across the interface are potentially very rich in archaeological remains. Although much good archaeological research and analysis has been undertaken in advance of previous iterations of this scheme and for other purposes, this information needs to be pulled together and gaps identified for further investigation, particularly taking note of the Welsh Archaeological Research Framework. The route would</p>	<p>The sensitivity of the historic resource within the study area is acknowledged within the Environmental Report. In the absence of a detailed alignment and detailed archaeological investigations, which will be undertaken at project level should the draft Plan be adopted, the Environmental Report concluded major negative effects pending further study.</p> <p>Project level EIA assessment, should the draft Plan be adopted, will compile and assess the existing baseline information, including previous studies, and supplement this with non-intrusive survey and intrusive surveys where relevant.</p> <p>An ASIDOHL2 (Assessing the Significance of the</p>

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	<p>also cross or be located in close proximity to the northern part of the Gwent Levels Registered Historic Landscape of Outstanding Importance.</p> <p>Welsh Office Circular 60/96 Planning and the Historic Environment: Archaeology sets out advice on legislation and procedures relating to archaeological remains. It states the importance of archaeology and that archaeological remains are a finite, and non-renewable resource, in many cases highly fragile and vulnerable to damage and destruction. In contrast to much of the natural environment resource, archaeology is typically immobile and cannot recover. As such, the complex evidence cannot usually be mitigated through relocation or recreation.</p> <p>Mitigation responses are often limited to the preservation of archaeological remains in situ or the preservation of archaeological remains by record. Para 17 states that ‘where nationally important archaeological remains, whether scheduled or not, and their settings, are affected by proposed development there should be a presumption in favour of their physical preservation in situ i.e., a presumption against proposals which would have a significant alteration or cause damage, or which would have a significant impact on the setting of visible remains’. Cadw views the maximisation of appropriate preservation in situ as an essential part of the sustainable development focus of this development proposal.</p> <p>Conversely, preservation by record means archaeological excavation, which means the total destruction of the archaeological evidence. This can be expensive and time-consuming, and should always be regarded as a second best option. On those occasions</p>	<p>Impact of Development On Historic Landscape areas on the Register⁴³) assessment will be undertaken to inform the project level EIA, should the draft Plan be adopted, to consider any effects of the Plan on the Gwent Levels historic landscape.</p> <p>Proposed mitigation measures integral to the Plan include the requirements to avoid, where possible, and reduce effects on cultural heritage features. These include: partnership working with Cadw and relevant bodies, sensitive design, detailed investigation and assessment at project level, sensitive construction techniques in areas of historical importance, identification of mitigation where appropriate and feasible and adherence to relevant legislation, best practice and current policy and guidance.</p>

⁴³ ICOMOS, CADW, CCW. 2007. Register of Landscapes of Outstanding Historic Interest in Wales; Revised Second Edition, including ASIDOHL2.

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	when preservation by record is the only option, then comprehensive and detailed investigation and recording must be undertaken in accordance with published national standards and guidance.	
Comments on the Proposed Routes	<p>There are no legally protected scheduled monuments of national importance along the western section of the proposed route of the motorway between Castleton and Newport on Wentlooge Level, although the Red and Purple Routes come into close proximity to the scheduled monument known as Castell Glas Castle Mound (MM190) south of Maes Ebbw School in Newport. The combined Black, Red and Purple route passes through the northern part of the Gwent Levels Registered Landscape of Outstanding Importance to the south of Coedkernew and Duffryn and would appear to potentially sever and orphan areas of the landscape as a result of bisection by the road. Thought will be required as to how to sensitively mitigate this issue. The routes potentially have a differential impact and the Historic Landscape Character Areas will need to be examined to see which of the various routes most diminishes the impact of the scheme.</p> <p>The Black, Red and Purple Routes cross the River Usk in the historic Newport Docks area and there is strong potential for the setting of listed buildings to be affected adversely by the over-bridging infrastructure. The Red and Purple Routes pass close to the south of the Transporter Bridge, which historically has been the lowest bridging point of the River Usk. All the proposed routes would establish a bridge lower down the River Usk and impact on views downstream from the Transporter Bridge. Given the discovery of the Newport Ship on the bank of the River Usk in advance of the construction of the Riverfront Arts Centre in 2002 and the significant cost and resourcing of the subsequent excavation and conservation (which is still ongoing) the possibility of a similar</p>	<p><i>Recorded Historic Assets</i></p> <p>We note that the western route corridor avoids legally protected scheduled monuments and that adoption of the Plan reduces potential effects on the scheduled monument known as Castell Glas Castle Mound (MM190) south of Maes Ebbw School in Newport.</p> <p>We note that adoption of the draft Plan would reduce potential effects on the Grade 1 Listed Newport Transporter Bridge, as concluded in the Environmental Report.</p> <p>We note that the Plan will pass to the north of the legally protected scheduled monument of national importance known as Moated Site E of Grangefield Farm (MM205).</p> <p><i>Unrecorded Historic Assets</i></p> <p>A methodology for the identification of unrecorded historic assets, and any required mitigation, will be developed in consultation with the relevant bodies during the EIA, should the draft Plan be adopted.</p> <p>Project level development will aim to avoid unrecorded historic assets identified through detailed survey within the constraints imposed through motorway design regulations or provide appropriate</p>

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	<p>occurrence should not be discounted.</p> <p>To the west [sic. east] of the River Usk the proposed routes converge to the south of the Glan Llyn Development Site and follow a common course to Junction 23. The proposed route will pass to the north of the legally protected scheduled monument of national importance known as Moated Site E of Grangefield Farm (MM205). The impact on the setting of the scheduled monument and the mitigation options need to be carefully considered. The indicated route will also pass in close proximity to the northern edge of the Gwent Levels Historic Landscape of Outstanding Importance to the south of Llanwern Steelworks and then pass through the registered landscape to the south of Magor. Careful thought will be required to mitigate the impact of the motorway and its infrastructure on the setting of these historic environment assets, particularly the open and relatively unobstructed views across the Gwent Levels historic landscape area.</p> <p>The proposed course of the motorway will impact on a much wider range of undesignated historic environment assets, including known field systems to the south of the Glan Llyn Development Site and a system of paleochannels around Llandevenny. Whilst many of the shallow lying archaeological features should be relatively easy to identify in advance through routine archaeological prospection, the deeper lying and potentially older and more interesting archaeological features will be more difficult to identify. Similarly, the positioning and impact of new infrastructure with deeper foundations will be more difficult to investigate and evaluate. A competent methodology and mitigation strategy needs to be developed to address this issue.</p>	<p>mitigation if this is not possible.</p> <p>Much of the undesignated historic environment assets, including known field systems to the south of the Glan Llyn Development Site and a system of paleochannels around Llandevenny, have been allocated for development under the Newport UDP and revised deposit LDP. Utilisation of the land already committed to development is considered to minimise potential effects and potentially minimise future expansion southward into the Gwent Levels.</p> <p><i>Historic Landscape</i></p> <p>We note that the majority of the route corridor passes to the north of the Gwent Levels Registered Landscape. Detailed assessment will be undertaken at project level to evaluate effects on the historic landscape using ASIDOHL2 and LANDMAP. Appropriate mitigation will be identified where applicable.</p>

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Impact of the Scheme	<p>Cadw's primary concern is on the extent and scale of the impact of the scheme on the historic environment. Impacts can be measurable or unforeseen, in terms of known and unknown historic environment assets respectively. Cadw recommends a thorough, comprehensive and detailed archaeological prospection and reconnaissance of the route corridor in order to identify as many previously unrecognised historic environment assets as possible. However, given the scale of the proposed scheme in such an archaeologically rich, extensive and diverse area the greatest care and sensitivity should be exercised in choosing the road construction methodology and method in order to diminish adverse impacts. For example the adoption of a 'rolling carpet' technique whereby the archaeological investigation works in advance of the front edge of road construction will identify the shallowly lying archaeology, but will not be able to see or respond to archaeological sites and features lying at deeper levels. Careful thought of the archaeological implications of the chosen construction method is required.</p> <p>Impact can be direct, comprising physical works, or indirect. The area through which the proposed M4 would be located is known to be remarkably rich in archaeological remains. However, given the buried and usually unknown nature of much of the archaeological resource the direct impact is often hard to predict or establish with confidence in advance. The unpredictable nature of new site discovery can make it hard to plan for and respond to new discoveries. This raises issues concerning which investigative methodologies to adopt and how to resource the approved response in terms of funding and time.</p> <p>The most significant direct impact will be the construction of the carriageway embankment across the Gwent Levels. The</p>	<p>The Plan minimises the extent and scale of potential effects on the historic environment by routeing the corridor through, or alongside, land that has been allocated for development through the Newport UDP and deposit LDP. Additionally, the corridor is routed through the landfill site south of the steelworks, actively avoiding risks to historic assets along this section.</p> <p>A methodology for the identification of unrecorded historic assets, and any required mitigation, will be developed in consultation with Cadw and relevant bodies.</p> <p>The potential risks associated with construction techniques, and wider mitigation and offsetting measures, are noted and will inform project level development, should the draft Plan be adopted. The possibility of bringing back in to use former historic reens that are currently non-functional will be considered during the EIA, should the draft Plan be adopted.</p> <p>We note Cadw agree with the WelTAG Stage 1 (Strategic Level) Appraisal conclusion of moderate adverse effect on cultural heritage but suggest the risk could increase following detailed assessment. For this reason the Environmental Report concluded a major negative effect on cultural heritage pending further investigation and assessment.</p> <p>With respect to the scheduled standing stone at</p>

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	<p>introduction of so much material and weight will have an impact on any underlying archaeology. The issue of the effect of surcharging the land with such weight and the resultant compaction on the underlying archaeology and how it can be mitigated successfully needs to be considered and raises many questions. For example, will the weight of the embankment materially change the buried environment beneath it and if so what will be the affect on the buried archaeology? How can these impacts be investigated? How far do these effects extend beyond the footprint of the embankment?</p> <p>Other elements of the scheme that may have an impact on historic environment assets include the creation of new related infrastructure such as junctions, bridge and link roads. The impact of natural environment mitigation on the historic environment is also of key importance. If the destruction of a certain length of the reen network requires the creation of an equivalent network of reens then there is strong potential for there to be an adverse impact on the historic environment. Such a proposal would have a substantial change on the existing pattern of the landscape, compounding the impact of the severance on the historic landscape by the proposed M4 route. This impact may be diminished from an historic environment perspective by bringing back in to use former historic reens that are currently non-functional. The siting of related infrastructure and mitigation areas require careful thought and consultation with Cadw.</p> <p>Indirect impacts include those affecting the setting of historic environment assets, for example visual or aural. Adverse visual impacts can be created through interference with views from, to, across and between historic environment assets. Visual juxtapositions and the wider effect of cumulative impacts are also important. Where the proposed route travels through areas with</p>	<p>Llanfihangel - Standing Stone 252m South of Bencroft Lane: MM068, we note the precedents in the Cadw response for the relocation of standing stones and acknowledge Cadw's preference to avoid relocation. Project level development will aim to avoid relocation as far as possible, should the draft Plan be adopted. This part of the scheme relates to the proposed link road. The draft Plan does not include any thinking regarding the link road; this would be developed at project level should the draft Plan be adopted. The scheduled standing stone will be considered when such details are available.</p>

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	<p>extensive open views, thought should be given to minimising the indirect impacts on adjacent historic environment assets.</p> <p>The Black, Red and Purple routes follow a common alignment at the east and west ends of the proposed motorway and will share a common suite of impacts in these areas. However, where the routes diverge the impacts of the individual routes will be differential and a methodology is required to assess the impacts and related significance for each proposed route.</p> <p>The consultation document contains an appraisal for each of the routes and the Do Minimum scenario. The significance of the impact for the heritage criterion is assessed as Moderate adverse for each of the three motorway routes. Cadw agrees with this assessment and appraisal which is based on the current information base, but the risk of the significance of the impact changing to Large adverse as either further investigation or the scheme itself advances is considered by Cadw to be likely.</p> <p>The brief written assessment for the Black Route's heritage criterion states that the scheduled standing stone at Llanfihangel (Standing Stone 252m South of Bencroft Lane (MM068)) would need to be relocated in order to accommodate the scheme. This is the only direct impact on a scheduled monument identified within the consultation document. The immediate archaeological context of the standing stone has been investigated through excavation and no evidence was identified. Whilst there are precedents for the relocation of standing stones it would be Cadw's preference for the scheduled monument of national importance to remain in its current location. The Grade II listed Magor Vicarage is also identified as needing to be demolished; in this instance Cadw must defer to the Local Planning Authority.</p>	

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	The Do Minimum scenario would result in no or limited impact on the historic environment resource and Cadw concurs with the neutral impact rating.	
Conclusion	The proposed M4 Corridor around Newport would, if given the go ahead, cross an area of rich historic environment resource and value. As a flagship Welsh Government transport scheme, the considerations of the complex impacts of the scheme options on the historic environment need to be at the very centre of Welsh Government's decision making process. Whilst there is an obvious tendency to concentrate on the natural environment impacts of the proposed scheme, in Cadw's opinion the impacts on the historic environment are just as critical and require robust investigation and sensitive design solutions.	The sensitivities and importance of the historic environment will be integral to the project level EIA, should the draft Plan be adopted, and will be supported by detailed investigations and assessment determined in liaison with Cadw and other relevant bodies.