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M4 Corridor Around Newport The Plan



July 2014

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Ministerial foreword

It is vital for Wales to have a transport system that provides access to jobs and services and improves our nation's economic competitiveness.

For many years, traffic congestion has been a fact of life for those using the M4 around Newport. Unreliable journey times impact on people's ability to take up job opportunities and discourages investment from high value businesses. Transport congestion affects our environment and local communities. With increasing traffic levels, these problems are expected to get worse.

To tackle this, we have identified the need for substantial improvements to the network between Magor and Castleton. Working with local communities, we have carried out extensive work and consultation in the development of the draft Plan. A public consultation between September and December 2013 allowed everyone to have their say.

Taking into account the responses to this consultation, we have decided to adopt this Plan, which includes:

- A new section of motorway being built between Junctions 23 and 29 south of Newport; alongside
- Complementary measures, to include:
 - Reclassifying the existing M4 between Magor and Castleton;
 - An M4/M48/B4245 Connection;
 - Providing cycle friendly infrastructure; and
 - Providing walking friendly infrastructure.

The Plan is seeking to improve accessibility for people, Welsh goods and services to international markets by addressing capacity and resilience on the main gateway into South Wales, which is the M4 Corridor.

This Plan forms an essential part of our vision for an efficient integrated transport system in South Wales. In parallel with the Plan, Welsh Government is taking forward a Cardiff Capital Region Metro. The Metro is seeking to improve accessibility to local employment sites, educational facilities and services within the Region and is complementary to the Plan for the M4 Corridor around Newport.



A handwritten signature in blue ink, appearing to read 'Edwina'.

Edwina Hart AM

Minister for Economy, Science and Transport

Glossary

AQMAs	<p>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.</p>
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>
Business Case	<p>Investment in any schemes that may be progressed from the Plan would be supported by a business case. This would consider the cost, benefits and wider impacts of the Welsh Government's adopted plan to address transport related problems on the M4 Corridor around Newport.</p>
CBI	<p>The Confederation of British Industry. A UK business lobbying organisation, providing a voice for employers at a national and international level.</p>
Complementary Measures	<p>In addition to the new section of motorway as outlined 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">• Reclassify 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>
DMRB	<p>Design Manual for Roads and Bridges, which is a government document providing advice and guidance on good practice in relation to the design of roads and bridges.</p>
Do Minimum / Do Minimum Scenario	<p>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) and any committed schemes (such as the Junction 28 / Bassaleg Roundabout / Pont Ebbw Roundabout improvement).</p>
draft Plan	<p>The Welsh Government initially outlined its preferred strategy to solve transport related problems affecting the M4 Corridor around Newport in its draft Plan. 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.</p>
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 Strategic Environmental Assessment (SEA) Regulations, Habitats Regulations Assessment (HRA) Regulations, 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 this Plan for the M4 Corridor around Newport.</p>

EIA	<p>Environmental Impact Assessment. It 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.</p>
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 this Plan for the M4 Corridor around Newport.</p>
EU Directive	<p>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.</p>
Existing M4	<p>The term 'existing M4' or 'existing motorway' is used to define the existing M4 around Newport, J23 to J29 (Magor to Castleton).</p>
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 this Plan for the M4 Corridor around Newport.</p>

HRA	<p>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 this Plan for the M4 Corridor around Newport.</p>
M4 CEM	<p>M4 Corridor Enhancement Measures. A previous Welsh Government initiative set up to explore and resolve issues of capacity, safety and resilience along the M4 corridor in South East Wales.</p>
M4 Corridor around Newport	<p>The M4 Corridor around Newport is the term used to brand the Welsh Government’s current work to address transport related problems on the M4 around Newport.</p>
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	<p>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.</p>

Participation Report Once the draft Plan Consultation ended, all responses were collated, analysed and considered. A 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. A Participation Report is published alongside this Plan for the M4 Corridor around Newport.

Preferred Route The Welsh Government may decide to announce a Preferred Route for the main element of this Plan, a new section of motorway to the south of Newport, which would protect the corridor for planning purposes through a statutory notice (TR111).

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. The Welsh Government has published its preferred strategy within this Plan for the M4 Corridor around Newport. When implemented, this Plan will lead to a new section of 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 considered improved public transport services on the M4. The Update took into account the potential impacts of the Cardiff City Region Metro and rail electrification.

Purple Route The Purple Route and its complementary measures were considered as a Reasonable Alternative during the development of this Plan. It comprises a 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.

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 ongoing and potential further development sites along this route.

Reasonable Alternatives

These are two Reasonable Alternatives to the draft Plan, being other options that the Welsh Government considers could solve the transport related problems affecting the M4 Corridor around Newport in South Wales. 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.

Reclassification

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 section of motorway is built to the south of Newport.

Reclassifying the existing motorway as a trunk road could enable traffic management, safety and revised access measures.

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 section of motorway is operational.

Red Route

The Red Route and its complementary measures were considered as a Reasonable Alternative during the development of this Plan. It involves the construction of an additional high quality road to the south of Newport, as a dual carriageway solution. 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.

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 ongoing and potential further development sites along this route.

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).

SM	Scheduled Monument. A registered monument considered to be of national importance by the Welsh Government.
Scheme / Project	For individual schemes or projects, the appropriate level of appraisal is more detailed, quantitative and evidence based. The proposed new section of motorway that currently forms the main element of this Plan, at a strategy level of detail, will now be progressed as a scheme / project.
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 coordinates 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.
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 suggested during Consultation' Report has been prepared to address suggested alternative options put forward by respondents to the draft Plan Consultation. This report has informed the SEA Statement and other relevant associated assessments of this Plan.
Strategy, Plan or Programme	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. The Welsh Government's preferred strategy to address transport related problems on the M4 Corridor around Newport is outlined in this Plan.

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.
WeITAG	<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 WeITAG Stage 1 (Strategy Level) Report recommended the main elements that form part of the draft Plan.</p>
WHIASU	Wales Health Impact Assessment Support Unit.

Executive summary

The M4 is critical to the Welsh economy. It forms part of the Trans European Transport Network (TEN-T) and is the gateway to Wales, transporting people and goods to homes, industry and employment. It provides access to ports and airports and serves the Welsh tourism industry. The M4 Motorway between Magor and Castleton is the most heavily trafficked section of road in Wales, forming part of strategic routes to the Midlands and the South East of England. However, it does not meet modern motorway design standards. This section of the M4 is often congested, especially during weekday peak periods, resulting in slow and unreliable journey times, stop-start conditions, and with incidents frequently causing delays.

Existing problems relate to capacity, resilience, safety and issues of sustainable development. Traffic forecasts show that the problems will worsen in the future.

Within this Plan we outline the strategy to address the transport related problems on the M4 Corridor around Newport.

Since the early 1990s, much assessment and consultation has been undertaken to develop a preferred solution to the problems on the motorway around Newport. In the past these have stalled due to the lack of available funding. Recent initiatives have created potential funding opportunities for Welsh Government infrastructure projects. As a consequence, the decision was taken by the Welsh Government to further reconsider solutions to resolve transport related problems on the M4 around Newport. Between September and December 2013 the Welsh Government undertook a public consultation on its draft Plan and associated environmental, health and equality assessments. Taking into account the responses to the consultation, the Plan for the M4 Corridor around Newport has been finalised. It 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 Plan is seeking to improve accessibility for people, Welsh goods and services to international markets by addressing capacity and resilience on the main gateway into South Wales, which is the M4 Corridor. In parallel with the Plan, Welsh Government is taking forward a Cardiff Capital Region Metro. The Metro is seeking to improve accessibility to local employment sites, educational facilities and services within the Region and is complementary to the Plan for the M4 Corridor around Newport.

A number of Reasonable Alternatives were considered as part of the draft Plan, whilst other suggested alternatives that were put forward during the consultation have also been taken into account as part of the Welsh Government's decision to adopt this Plan (for more information, see Section 3.4). The Welsh Government's decision making process is informed by a number of supporting documents that are published alongside this Plan, including the following:

- WeITAG Stage 1 (Strategy Level) Appraisal Report¹;
- Consultation Participation Report;
- Strategic Appraisal of Alternatives Considered During Consultation;
- Strategic Habitats Regulations Assessment;
- Strategic Environmental Assessment (SEA) Environmental Report;
- Equality Impact Assessment;
- Health Impact Assessment; and
- SEA (Post - Adoption) Statement.

These are all available to view at www.m4newport.com.

The provision of a new section of motorway to the south of Newport will provide the opportunity to optimise the function of the existing M4 route between Magor and Castleton.

A high level cost estimate for the new section of motorway is around £1bn. Value engineering would aim to provide cost savings as part of future scheme development.

The Welsh Government will provide a link between the M48, the B4245, and the M4, which will result in benefits to users of the local road network, provide greater network resilience, and offer relief to Junction 23A. Additional cycling and walking infrastructure will also be provided, which will aim to improve accessibility for those undertaking shorter trips, and for those who do not have access to a car. This will also help to benefit the health and wellbeing of our communities.

Options for further schemes that could be progressed after the reclassification of the existing motorway between Magor and Castleton will be explored as part of scheme development. This could include improvements to the mainline and junctions along the existing M4 to increase local accessibility to key locations such as Caerleon. These improvements will also seek to improve access by walking, cycling and public transport.

¹ Welsh Transport Planning and Appraisal Guidance (WeITAG) is applied to all transport strategies, plans and schemes being promoted or requiring funding from the Welsh Government. A WeITAG strategy level appraisal for the M4 Corridor around Newport was published in (June 2013).

In order to inform the decision making as part of the development of this Plan, appropriate strategy level appraisals have been undertaken to assess the different elements of our preferred strategy. The appraisals consider the Plan in its ability to meet the objectives for the M4 Corridor around Newport, and assess it against economic, environmental and social criteria. This has shown that the Plan performs very strongly in achieving the objectives for the M4 Corridor around Newport, and very strongly against economic criteria. It performs strongly against social criteria. However, it has potentially adverse impacts on some environmental criteria (biodiversity, landscape and townscape in particular), whilst having a positive effect upon existing air quality and noise pollution.

During scheme development the Welsh Government will be progressing appropriate mitigation measures that will limit any potential adverse impacts on the environment. These have already been considered at a high level as part of our Plan's associated assessments. These mitigation measures will be developed further, with the input of an Environmental Liaison Group including Natural Resources Wales and others, as we move into scheme level design.

Specific details of the measures outlined in this Plan will be developed as part of scheme design, involving engagement with local communities and key stakeholders such as Newport City Council, Monmouthshire County Council and Natural Resources Wales. This will build on the strategy level work and associated public consultation already undertaken as part of the development of this Plan.

Further environmental surveys will be carried out to inform the development of the scheme and its mitigation and monitoring proposals. This will result in the carrying out of scheme level Habitats Regulations Assessment and Environmental Impact Assessment, which will be reported in an Environmental Statement. The formal Environmental Statement is usually published together with a draft Line Order, a draft Side Roads Order (SRO) and draft Compulsory Purchase Order (CPO). Sometimes the draft SRO and CPO are not published until the Line Order has been through the statutory process and has been made. The publication of the draft Line Order is the equivalent of an application for planning consent. The procedures are set out in the Highways Act 1980. Local authorities (and certain other organisations and individuals) have a statutory right to object and their objection would normally trigger a public local inquiry.

Following the adoption of this Plan, the Welsh Government may modify the Preferred Route that currently protects a corridor to the south of Newport for planning purposes. This was last revised in 2006.

The Statutory Orders required to construct the measures outlined in this Plan are likely to be published in spring 2016. Subject to the outcome of statutory processes, it is anticipated that construction work would commence in spring 2018, with the proposed new section of motorway open in 2021/22.

The M4 in South Wales forms part of the Trans-European Transport Network (TEN-T), which provides connections throughout Europe by road, rail, sea and air. The M4 plays a key strategic role in connecting South Wales with the rest of Europe, providing links to Ireland via the ports in South West Wales and England and mainland Europe to the east. It is a key east-west route being the main gateway into South Wales and also one of the most heavily used roads in Wales.

The M4 is critical to the Welsh economy. Cardiff, Newport and Swansea have ambitious regeneration strategies and Monmouthshire County Council is developing areas around Junction 23A of the M4. Rhondda Cynon Taff has important gateways onto the motorway at Junctions 32 and 34. Bridgend is served by M4 Junctions 35 and 36. Neath Port Talbot straddles the motorway and gets important access from Junctions 38 to 43. Congestion on the M4 causing unreliable journey times and reduced service levels will therefore hinder economic development in South Wales.

The M4 between Junctions 28 and 24 was originally designed as the 'Newport Bypass' with further design amendments in the 1960s to include the first motorway tunnels to be built in the UK.

The existing M4 between Magor and Castleton does not meet modern motorway design standards. This section of the M4 has many lane drops and lane gains, resulting in some 2-lane sections, an intermittent hard shoulder and frequent junctions.

It is often congested, especially during weekday peak periods resulting in slow and unreliable journey times and stop-start conditions with incidents frequently causing delays.

This is why problems with congestion and unreliable journey times have been a fact of life on the M4 around Newport for many years. The motorway and surrounding highway network does not cope with sudden changes in demand or operation, for example as a result of accidents or extreme weather events. These issues are worse at times of peak travel and have worsened as the number of users on the network has increased.

The existing M4 around Newport is shown in Figure 1.

Problems encountered on the existing M4 around Newport relate to capacity, resilience, safety and issues of sustainable development.

2.1 Capacity

Capacity means the ability for the M4 Corridor around Newport to accommodate traffic. Arup has developed a traffic model², on behalf of the Welsh Government, to analyse capacity. Analysis shows that in 2013 during week day peak periods, traffic flows approached 100% of capacity³. Once flows exceed 80% of capacity, traffic can expect operational problems. The more congested road conditions become, the greater the risk of incidents and accidents occurring. People may undertake their journey earlier or later, leading to the morning and afternoon peak traffic being experienced or exceeded over longer periods. Traffic speeds also vary over short periods of time, with an inconsistent pattern from day to day. This means that journey times, particularly for commuters, business and goods vehicles are unreliable.

Whilst capacity is a problem now, the situation is expected to deteriorate further. As shown in Figure 2, forecasts of future traffic volumes show that traffic congestion will be severe on most links by 2022 and by 2037 the motorway around Newport will be heavily congested, with all sections between J23A and J29 experiencing flows above 100% of capacity during weekday peak periods⁴.

Figure 2: Observed and Forecast Week Day Peak Period Flow to Capacity⁵

Section of M4	2012	2022	2037
J28 – J29	90%	105%	114%
J27 – J28	98%	106%	112%
J26 – J27	89%	100%	106%
Brynglas Tunnels	80%	91%	102%
J25 – J25A	74%	86%	101%
J24 – J25	77%	89%	106%
J23A – J24	62%	75%	92%
J23 – J23A	61%	71%	87%

Flow to capacity	Operational conditions
< 80%	Possible operational problems
80% to 100%	Operational problems occurring
> 100%	Severe operational problems

2 M4 Corridor around Newport Local Model Validation Report (2013).

3 Source: Arup analyses (2012).

4 Source: Arup analyses (2012), based on the Do Minimum scenario, which means doing nothing above what is already planned or committed.

5 Based on values of time and vehicle operating costs published by the DfT in (October 2012) and growth rates published in the National Transport Model (NTM) in (2013).

2.2 Resilience

Resilience means the ability of the transport network to respond to incidents including accidents, roadworks and other causes of delays. Issues associated with resilience on the M4 Corridor around Newport include:

- There is limited capacity on alternative routes when traffic needs to be diverted off the M4 around Newport;
- Temporary decreases in highway capacity due to incidents or essential road works result in significant delays and adverse effects, particularly on local roads when they are used as diversions;
- Major maintenance works to the M4 will be required within the next 5-10 years, which could cause significant disruption. Significant maintenance works (that may be over a long period of time) are needed at the Brynglas Tunnels in order to meet current safety standards;
- There is a perceived lack of information available about the road network for drivers planning to use the M4 but who have not yet joined it. This could assist them avoiding congestion at an earlier opportunity, particularly during incidents and delays; and
- Adverse weather conditions can cause disruption to the transport network. This problem is perceived to be worse when compared to other UK motorways in light that this problem is exacerbated given the lack of capacity on alternative routes to the M4 around Newport.

2.3 Safety

Issues with safety on the M4 Corridor around Newport include:

- Some sections have alignments (gradients and bends) that are below current motorway standards and in places there is no hard shoulder. In addition to this, there are frequent junctions, resulting in many weaving movements with vehicles accelerating, decelerating and changing lanes over relatively short distances. These weaving movements reduce the capacity of the road and can also result in accidents;
- The most common type of accidents on the M4 between Junctions 23 and 29 are rear-end shunts on both the westbound and eastbound approaches to the Brynglas tunnels. This is largely due to the stop-start conditions that occur during peak periods caused by the motorway reducing from three lanes to two lanes; and
- The Variable Speed Limit (VSL) system was introduced in June 2011 between Junctions 24 and 28, in order to improve safety conditions and traffic flow in the short term. In 2012 and 2013 there was a reduction in accidents compared with previous years.

2.4 Sustainable development

Traffic congestion adversely impacts on the local environment, community and economy around Newport.

Congestion on the M4, particularly around Cardiff and Newport, is cited by the business community in South Wales as a barrier to economic growth. Where congestion increases, the cost of transport for businesses, commuters, consumers and economic performance can be affected. Increased congestion can also result in longer journey times for commuters, reducing the effective travel to work area.

In terms of the environment, local authorities in the UK 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. Out of Newport's seven Air Quality Management Areas (AQMAs), four are associated with the M4.

The forecast traffic volume increases along the M4 would contribute not only to poor air quality, but also noise pollution, compromising the amenity of neighbouring residential communities. Assuming no improvements to vehicle emissions technology, increased flows and stop start conditions would give rise to more vehicle emissions along these routes. It is important to note that stop-start congested traffic can result in higher CO₂ emissions than free-flowing traffic. Alongside the motorway at Newport, there are also Noise Action Planning Priority Areas (NAPPAs), which investigate where noise levels are high and help create noise action plans to address the issue.

The AQMAs in Newport are available to view on the Newport City Council website⁶, whilst recently published Wales Noise Maps are being used to help the Welsh Government to develop and implement a noise action plan for Wales, which is due to be published shortly. These are also available on the Welsh Government website⁷.

Other issues relating to sustainable development on the M4 Corridor around Newport include:

- For a significant number of journeys, particularly inter-urban and longer distance trips, there are no convenient public transport alternatives to the car;
- The motorway provides for the movement of goods;
- In areas adjacent to the M4, noise levels generally exceed 55 decibels. This means that some communities around Newport are subjected to 'moderate' noise levels that are at least equivalent to normal conversation, or background music. In areas in close proximity to the existing motorway, noise levels generally exceed 70 decibels. This means that communities adjacent to the existing motorway around Newport are subjected to 'loud' noise levels that are at least equivalent to a vacuum cleaner⁸;

6 See http://www.newport.gov.uk/_dc/index.cfm?fuseaction=environmentalhealth.homepage&contentid=cont446709.

7 See <http://data.wales.gov.uk/apps/noise/>

8 The Land Compensation Act 1973 and the Noise Insulation Regulations 1975 (amended 1988) and 1996 allows for grants for the cost of sound insulation in premises subjected to noise from new or upgraded roads which result in excessive noise levels beyond stated thresholds.

- It is acknowledged that traffic emissions contribute towards air pollution in the Newport area; and
- There is a perception that traffic congestion is a constraint to economic development in South East Wales⁹.

2.5 Problems, aims and goals

These problems, goals and aims of the Plan were subject to dialogue during the early stages of the engagement process, with public and stakeholders.

17 problems are identified; which encompass issues of capacity, network resilience, safety and sustainable development.

15 goals are identified and each one aims to address one or more of the problems.

Problems on the M4 Corridor around Newport

The 17 identified transport related problems are listed below.

Capacity

1. A greater volume of traffic uses the M4 around Newport than it was designed to accommodate, resulting in regular congestion at peak times over extended periods.
2. The M4 around Newport is used as a convenient cross town connection for local traffic, with insufficient local road capacity.
3. HGVs do not operate efficiently on the motorway around Newport.
4. There is insufficient capacity through some of the junctions (e.g. 3-lane capacity drops to 2-lane capacity).
5. The 2-lane Brynglas tunnels are a major capacity constraint.
6. The M4 cannot cope with increased traffic from new developments.

Resilience

7. Difficulties maintaining adequate traffic flows on the M4 and alternative highway routes at times of temporary disruption; alternative routes are not able to cope with M4 traffic.
8. The road and rail transport system in and around the M4 Corridor is at increasing risk of disruption due to extreme weather events.
9. When there are problems on the M4, there is severe disruption and congestion on the local and regional highway network.
10. The M4 requires essential major maintenance within the next 5-10 years; this will involve prolonged lane and speed restrictions, thus increasing congestion problems.
11. There is insufficient advance information to inform travel decisions when there is a problem on the M4.

⁹ Welsh Government, M4 Corridor Enhancement Measures (M4 CEM), Participation Report, Arup, (August 2013).

Safety

12. The current accident rates on the M4 between Magor and Castleton are higher than average for UK motorways¹⁰.
13. The existing M4 is an inadequate standard compared to modern design standards.
14. Some people's driving behaviour leads to increased accidents (e.g. speeding, lane hogging, unlicensed drivers).

Sustainable Development

15. There is a lack of adequate sustainable integrated transport alternatives for existing road users.
16. Traffic noise from the motorway and air quality is a problem for local residents in certain areas.
17. The existing transport network acts as a constraint to economic growth and adversely impacts the current economy.

Aims for the M4 Corridor around Newport

The aims of the Welsh Government for the M4 Corridor around Newport are to:

- Make it easier and safer for people to access their homes, workplaces and services by walking, cycling, public transport or road.
- Deliver a more efficient and sustainable transport network supporting and encouraging long-term prosperity in the region, across Wales, and enabling access to international markets.
- To produce positive effects overall on people and the environment, making a positive contribution to the overarching Welsh Government goals to reduce greenhouse gas emissions and to making Wales more resilient to the effects of climate change.

This Plan aims to help to achieve or facilitate these aims as part of a wider transport strategy for South East Wales, as outlined within the Prioritised National Transport Plan¹¹.

Goals of the M4 Corridor around Newport

The Welsh Government, with your input, has identified 15 goals for the M4 Corridor around Newport. These goals aim to address the identified transport related problems. For clarity, goals are referred to as "Transport Planning Objectives" (TPOs) in the Welsh Transport Planning and Appraisal Guidance (WeITAG) (see Glossary).

¹⁰ This objective was agreed with community input in 2012. The Variable Speed Limit (VSL) system was introduced in June 2011 between Junctions 24 and 28, in order to improve safety conditions and traffic flow in the short term. The first year of operation has shown a reduction in accidents.

¹¹ National Transport Plan (2010) and Prioritised National Transport Plan (2011) Welsh Government.

The 15 goals (listed below) have provided a framework in which to appraise the relative performance at a strategic level of the draft Plan options, as part of the development work that has led to the adoption of this Plan.

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

Since the early 1990s, much assessment and consultation has been undertaken to develop a preferred solution to the problems on the motorway around Newport. A summary of previous work is provided below and shown on a timeline in Figure 3.

For many years, concerns have been raised regarding the potential for delays on the motorway and trunk road network in South Wales.

In March 1989, the then Secretary of State for Wales commissioned the South Wales Area Traffic Study (SWATS) to review traffic patterns over part of the trunk road network in South Wales in order to identify problem areas and propose possible solutions.

The 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 was developed, 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. This was included in the Welsh Trunk Road Forward Programme in 1991. An M4 Relief Road Preferred Route was then published in 1995 and amended in 1997.

In 2004, the then Minister for Economic Development and Transport reported on the outcome of his review of transport programmes, which was undertaken to ensure a strategic fit with: 'Wales: A Better Country' and the Wales Spatial Plan. One of the conclusions of the review was that additional capacity was still required on the M4 motorway in South East Wales, in order to reduce congestion, improve resilience and remove an obstacle to greater prosperity along the whole corridor through to Swansea and West Wales. In addition to widening the motorway north of Cardiff, the Minister announced proposals to develop a New M4 south of Newport between Magor and Castleton.

Following Ministerial Review in 2004, the New M4 Project was the subject of a thorough reexamination in order to ensure fit with policies at that time and to take account of physical and legislative changes. Three key activities were undertaken:

1. A re-examination of route corridors considering, in particular, the implications and consequences of legislative changes and physical developments within the original project study area;
2. A comprehensive review of the previously published M4 Relief Road Preferred Route; and
3. A Junction Strategy Review.

The conclusion of these studies confirmed the route to the south of Newport as the optimal solution to tackling the problems of congestion on the M4 Corridor around Newport. Following the Preferred Route and Junction Strategy Review, a TR111 Notice¹² (April 2006) was published to protect a revised route corridor. A series of public exhibitions were held in April and May 2006 to explain the changes to the public and other stakeholders with an interest in transport in South Wales.

3.1 M4 Corridor Enhancement Measures (M4 CEM) Programme

A written statement in July 2009, by the then Deputy First Minister Ieuan Wyn Jones, announced that the New M4 was not affordable. The statement, however, accepted “the need to urgently address safety and capacity issues on the existing route” through the introduction of “a range of measures”.

The M4 Corridor Enhancement Measures (CEM) Programme¹³ was therefore initiated by the Welsh Government and this aimed to create a package of measures to deal with resilience, safety and reliability issues within the M4 corridor between Magor and Castleton.

Under the M4 CEM Programme, a long list of possible solutions was explored. Packages that combined public transport, highway and other travel solutions were identified for appraisal. These included widening of the M4 between Junctions 24 and 29 as well as improvement to the existing road network to the south of the Newport city centre and a new dual carriageway all purpose road to the south of Newport.

As part of the M4 CEM Programme, a comprehensive engagement process was launched in September 2010 culminating in a public consultation held between March and July 2012. During the engagement process, the Welsh Government and its project team engaged with both internal and external specialists and expert stakeholders. This process encompassed a diverse range of views and interests relating to transport in South Wales, as well as with people likely to be interested in and affected by any transport measures potentially adopted and implemented by Welsh Government.

The consultation resulted in public support for the provision of an additional high quality road to the south of Newport¹⁴, supported by additional measures to address travel related problems within the M4 Corridor. These were referred to as common measures. They comprised a mix of network improvements, network management, demand management, alternative modes and smarter sustainable choices. The M4 CEM WeITAG Stage 1 (Strategy Level) Appraisal Report¹⁵ concluded that the following measures were worthy of further consideration:

12 Once a Preferred Route is announced, Welsh Government serves a statutory notice (TR111) on the local planning authorities requiring the line to be protected from development. This is enacted under Article 19 of The Town & Country Planning (Development Management Procedure) (Wales) Order 2012

13 Further details of the M4 CEM Programme and its evolution are available at www.m4cem.com

14 Welsh Government, M4 Corridor Enhancement Measures (M4 CEM), Participation Report, Arup, August 2013

15 Welsh Government, M4 Corridor Enhancement Measures (M4 CEM), WeITAG Appraisal Report Stage 1 (Strategy Level), Arup, (March 2013)

- A new dual carriageway route to the south of Newport;
- Public transport enhancement; and
- Common measures.

3.2 M4 Corridor around Newport draft Plan

Initiatives, including discussions between the Welsh Government and HM Treasury / Department for Transport, as well as the work of the Silk Commission¹⁶, created future potential funding opportunities for Welsh Government infrastructure projects. As a consequence, the decision was taken by the Welsh Government to further reconsider solutions to resolve transport related problems on the M4 around Newport.

Thus, in order to inform the strategy for the M4 Corridor around Newport, a further M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Appraisal¹⁷ was undertaken of options that included M4 CEM measures, provision of new section of motorway capacity routed to the south of Newport and complementary measures. The options considered within the WelTAG Appraisal were as follows:

1. A new section of 3-lane motorway to the south of Newport following the protected (TR111) route (Black Route);
2. A new dual 2-lane all purpose road to the south of Newport following an alignment that would allow it to be constructed in phases (Red Route);
3. A new section of 3-lane motorway to the south of Newport along a similar alignment to the all purpose road (Purple Route);
4. Public transport measures; and
5. Complementary measures.

The M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Appraisal concluded that a new section of 3-lane motorway to the south of Newport following a protected (TR111) route, in addition to complementary measures, would best achieve the goals and address the problems of the M4 Corridor around Newport, and should be progressed for further appraisal.

These options subsequently formed the basis for the development of the draft Plan, which was subject to public consultation between September and December 2013. Responses to the draft Plan consultation are summarised within the Plan Consultation Participation Report¹⁸ and have been used to finalise the associated environmental, health and equality assessments at the strategy level¹⁹. Taking these into account, the Welsh Government decided to adopt the draft Plan's preferred strategy and publish it within this Plan.

16 The 'Silk' Commission on Devolution in Wales, which is reviewing the case for the devolution of fiscal powers and reviewing the powers of the National Assembly for Wales (March 2014) see <http://commissionondevolutioninwales.independent.gov.uk>.

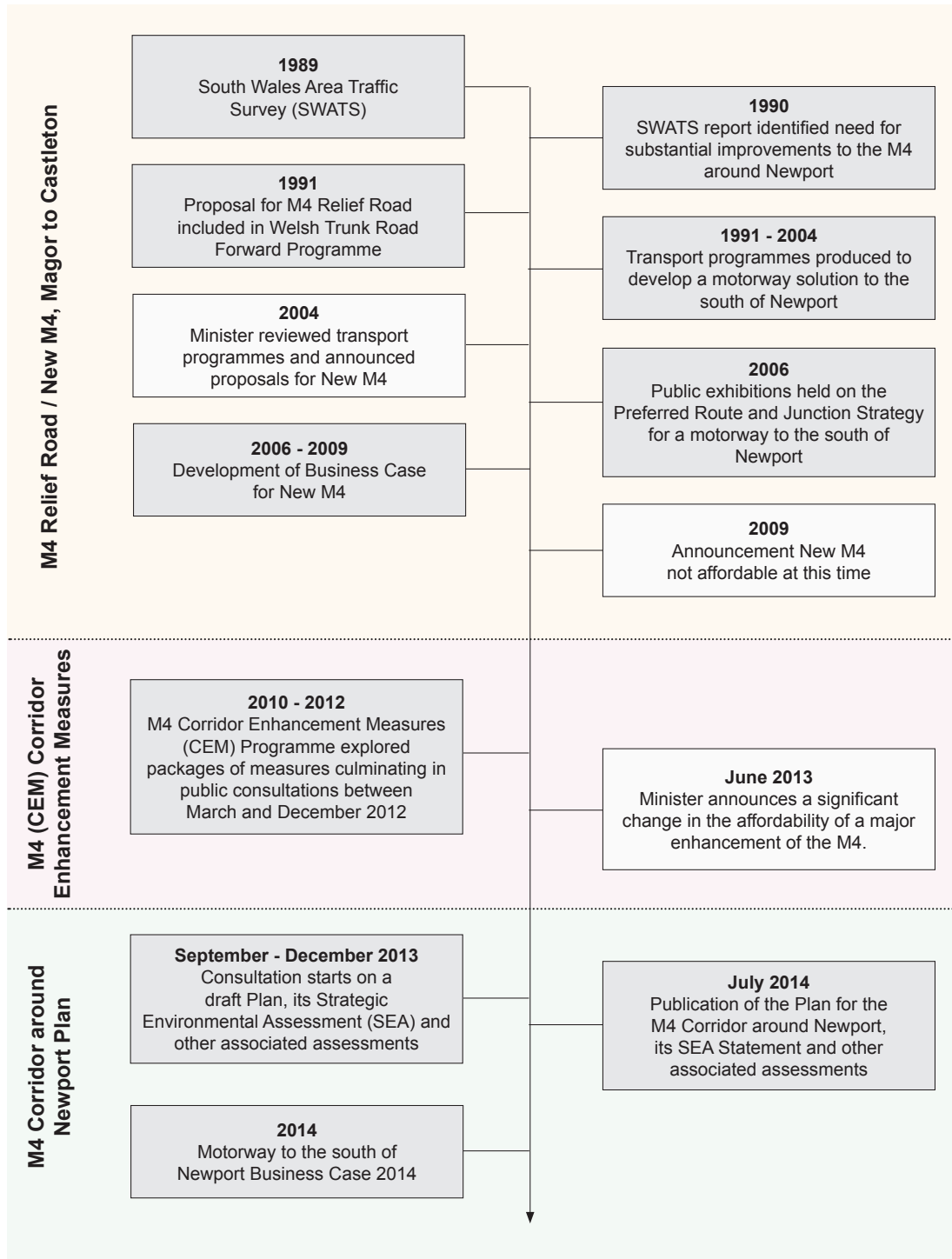
17 Welsh Government, M4 Corridor around Newport, WelTAG Appraisal Report Stage 1 (Strategy Level), Arup, (June 2013).

18 M4 Corridor around Newport Consultation Participation Report (July 2014).

19 Equality Impact Assessment; Health Impact Assessment; Strategic Habitats Regulations Assessment; Strategic Environmental Assessment.

The draft Plan also acknowledged that public transport enhancement will contribute to some of the goals of the M4 Corridor around Newport. Studies during the draft Plan development identified that an increased use of public transport in the Newport area would not solve the problems on the M4 Corridor around Newport. Nevertheless, the Welsh Government recognises the importance of public transport improvements and a dedicated separate task group has been formed to take forward proposals to develop a metro system for South East Wales. The M4 Corridor around Newport Plan is compatible with, and will complement, the Cardiff Capital Region Metro and the electrification of the rail network.

Figure 3: History of the M4 Corridor around Newport



3.3 Associated assessments

A number of environmental, health and equality based assessments have been undertaken in order to address the Strategic Environmental Assessment (SEA) Regulations 2004, Conservation of Habitats and Species Regulations 2010, the Equality Act 2010 and WelTAG. The documents detailed below report on the assessments of the Plan:

Strategic Environmental Assessment (SEA) Environmental Report and SEA Statement

The SEA has been carried out in accordance with The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (SI 2004 No 1656) (the SEA Regulations). SEA is 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. SEA is a legal requirement for certain plans and programmes.

In summary, the SEA Environmental Report outlines that the Plan can be seen to perform in a complex way against the Environmental Objectives, as assessed in the SEA, with some potentially positive and some potentially negative effects identified. The comments received on the SEA Environmental Report have been given consideration and have been taken into account in finalising the Plan and in producing the SEA Statement. An SEA Statement has been prepared in accordance with the SEA Regulations to outline how the environmental assessment and consultation has influenced our decision making. Further detail regarding assessment, mitigation and monitoring of effects is provided within the SEA Environmental Report and the SEA Statement. Commitments made within these documents are adopted by the Plan.

Equality Impact Assessment (EqIA)

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. The Welsh Government is committed to improving the lives of the people in Wales and to achieving best practice in equality and human rights. The Plan's EqIA examines and analyses existing and potential impacts on certain groups of people and individuals.

In summary, it demonstrates that the new section of motorway could bring benefits to all protected character groups with varying degrees of benefit dependent upon need (e.g. improved access to healthcare for pregnant women and new parents). Alongside those with access to the car, the new section of motorway could also bring benefit to those reliant on public transport to access services, facilities and employment, by reducing the amount of traffic that currently diverts onto local roads during peak periods in order to avoid congestion on the M4 Corridor around Newport. Furthermore, the complementary measures would bring a variety of benefits, with improvements to walking and cycling infrastructure offering improved access to local services, facilities and employment, as well as improved access to public transport facilities for those reliant on public transport for local and regional travel.

This strategic assessment will be updated as part of future scheme development, to consider scheme level issues.

Health Impact Assessment (HIA)

WelTAG states that HIA is a mandatory requirement of transport appraisal. The Plan's HIA Report considers how the health and well-being of a population may be affected by the Plan. In summary, it demonstrates that the Plan will help to provide positive impacts on lifestyle, living conditions, working conditions, access to services, and other socio-economic, cultural and environmental issues affecting health. In particular, benefits are likely to be achieved in the Air Quality Management Areas and Noise Action Plan Areas in Newport as a result of reducing traffic congestion in the urban areas of Newport. Whilst no negative health impacts are identified for the Plan, the Do Minimum Scenario would lead to largely neutral or negative impacts.

This strategic assessment will be updated as part of future scheme development, in accordance with guidance from the Wales Health Impact Assessment Support Unit (WHIASU), to consider scheme level issues.

Strategic Habitats Regulations Assessment (SHRA)

The SHRA has been carried out in accordance with the Conservation of Habitats and Species Regulations 2010. The assessment concluded, with certainty beyond reasonable scientific doubt, that during the design of any scheme, avoidance and mitigation measures would be included to ensure that the design, construction and operation of a scheme would not adversely affect the integrity of this site and others. Examples of mitigation works which incorporate best practice are:

- Designing the bridge to carry the motorway over the River Usk, a Special Area of Conservation (SAC), such that there would be no piers in the wet channel thereby avoiding any potential adverse impacts on migratory fish movements.
- Maintaining connectivity of the watercourses including the reen system within the Gwent Levels through the construction of culverts thereby avoiding any potential adverse impacts on the movements of eels.
- Minimising construction work in close proximity to sensitive roosting / feeding areas for birds during the overwintering period and discouraging them from the construction areas. There are alternative areas throughout the Gwent Levels that could provide alternative roosting / feeding areas for bird species which are features of the Severn Estuary.
- Designing highway lighting and underpasses to maintain the connectivity of existing bat flight lines thereby avoiding any potential adverse impact on the movement of bats. It should be noted that the existing motorway already has highway lighting from the M4 Toll Plaza through to Junction 23A at Magor.

3.4 Consideration of alternatives

Alternatives to the draft Plan have been identified and assessed in the development of the draft Plan using Welsh Government's WeITAG 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.

Development work built on historic appraisal undertaken since the early 1990s for the M4 Relief Road and New M4 Project, as outlined in the relevant WeITAG reports.

During the M4 CEM Programme, WeITAG appraisal was supported by extensive development work, which is publically available on project websites (www.m4cem.com and www.m4newport.com). The M4 CEM WeITAG report 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 the transport planning objectives. A long list of possible solutions was explored and the findings informed development of the draft Plan.

As explained in the M4 Corridor around Newport Stage 1 (strategy level) WeITAG report, 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.

Strategic Environmental Assessment (SEA) requires an SEA 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 Plan²⁰. To constitute a Reasonable Alternative; it must satisfy the proposer of a plan that it is able to meet the objectives for its draft Plan.

During these processes, alternatives were rejected where they did not meet the objectives of the programme. Consideration of alternatives during preparation of the draft Plan is set out in workshop reports, workbooks and the WeITAG appraisals. This development work is referenced in the M4 Corridor around Newport SEA Statement and is publically available via the project websites aforementioned.

²⁰ 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 WeITAG Stage 1 (Strategy Level) reports to which references and hyperlinks to the publically available reports were included.

During the draft Plan consultation, some respondents put forward alternative solutions for the Welsh Government's consideration. Whilst many of these have been appraised as part of previous development work, all are outlined in a Strategic Appraisal of Alternatives Considered during draft Plan Consultation (2014)²¹. Some of the suggested alternatives include:

- Grade-separated A48 Southern Distributor Road (SDR) and upgraded A4810 Steelworks Access Road (SAR), also known as the 'Blue Route';
- Alignment of the Motorway to the south of Magor;
- Alignment of the Motorway to the west of Wilcrick Hill;
- Tunnel under the River Usk;
- Barrage across the River Usk;
- Tunnel widening at Brynglas;
- Motorway to the north of Newport;
- Public Transport; and
- The 'Do Nothing' Strategy.

Appraisal concludes that none of the alternatives submitted are considered to be 'Reasonable Alternatives'. A summary of the engagement and consultation process, including consultation responses, is provided within the M4 Corridor around Newport Participation Report. Alternatives suggested in responses to the draft Plan consultation are considered by the Welsh Government within the Strategic Assessment of Alternatives Report, which is referenced within the Participation Report and SEA Statement.

21 M4 Corridor around Newport Strategic Appraisal of Alternatives Considered during draft Plan Consultation (2014).

In recognising the range of the objectives for this Plan, we have combined highway infrastructure and other demand management solutions to establish our preferred strategy to address transport related problems on the M4 Corridor around Newport.

The Welsh Government's Plan for the M4 Corridor around Newport is:

- A new section of 3-lane motorway between Magor and Castleton to the south of Newport; and
- Complementary measures:
 - Re-classify existing M4 between Magor and Castleton;
 - M4/M48/B4245 Connection;
 - Provide cycle friendly infrastructure; and
 - Provide walking friendly infrastructure.

A number of Reasonable Alternatives were considered as part of the draft Plan, whilst other suggested solutions that were put forward during the draft Plan consultation have also been taken into account as part of the Welsh Government's decision to adopt this Plan. For further information, documents including a Participation Report, Strategic Appraisal of Alternatives Report, and SEA Statement are available to view at www.m4newport.com, which outline how we have taken alternative options into account as part of the Welsh Government's decision making process.

The alignment of the new section of motorway is shown in the context of the local constraints on Figure 4. This shows the indicative alignment at this appropriate strategy level of detail.

The high level cost estimate for the new section of motorway is around £1bn. Value engineering will be undertaken as part of future scheme development and detailed design, in order to provide potential cost savings.

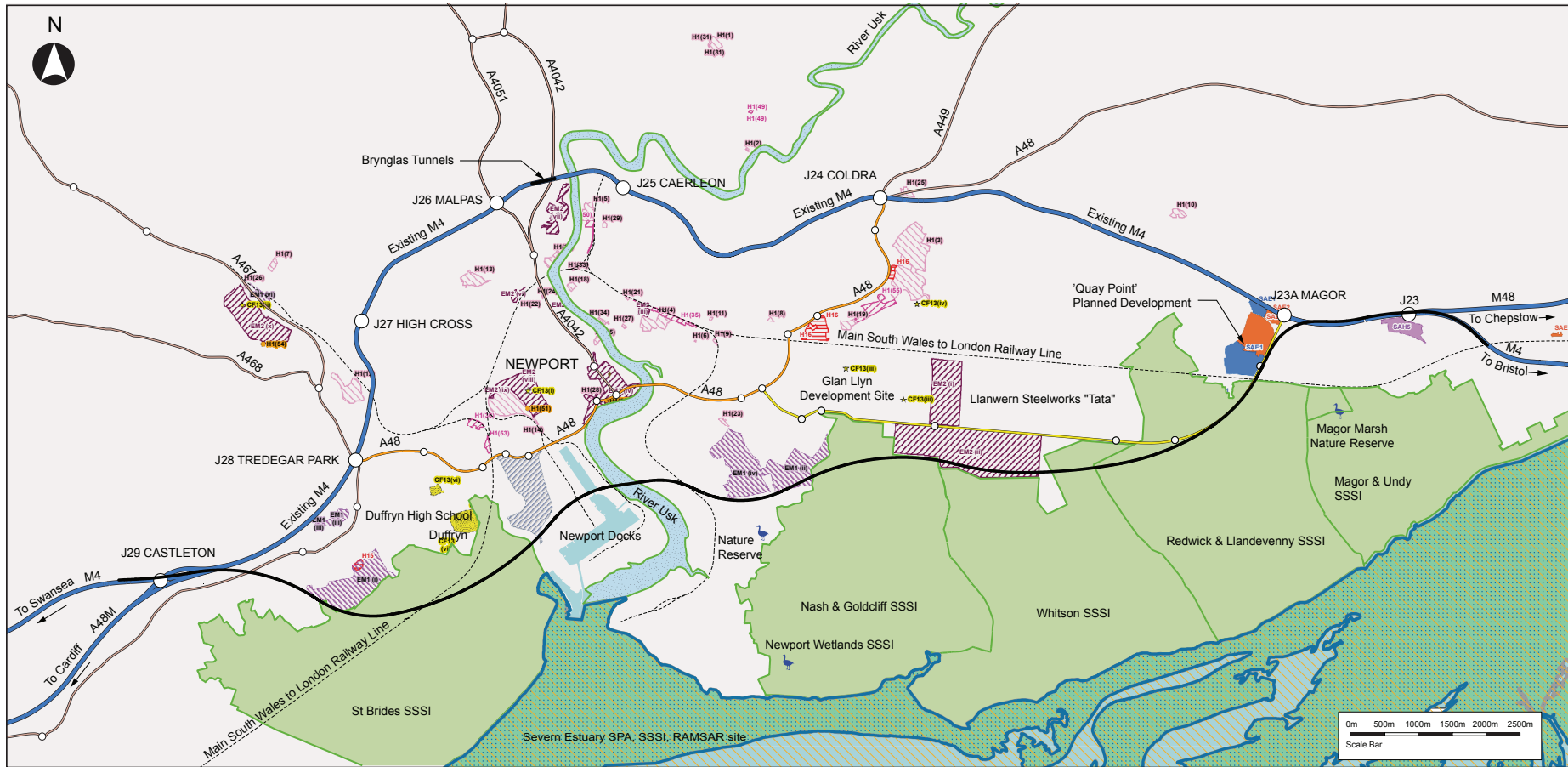
A junction strategy will be investigated as part of scheme development. The new section of motorway would not be a bypass of Newport but would benefit from intermediate junctions, in order to serve Newport's key employment sites, services and communities. The junction strategy will complement the Cardiff Capital Region Metro proposals and support strategic development sites as outlined in local planning policy documents.

The Plan's complementary measures are as follows:

Complementary Measure	Description
Reclassify existing M4 between Magor and Castleton	Reclassification of the existing motorway as a trunk road could enable traffic management, safety and revised access arrangements.
M4 / M48 / B4245 connection	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.
Provide cycle friendly infrastructure	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.
Provide walking friendly infrastructure	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.

Figure 4: The proposed line of a new section of motorway to the south of Newport



Legend

- Black Route (the main element of the draft Plan)
- ★ Education Sites
- X Housing Commitment
- Housing Proposal
- ▨ Urban Regeneration Sites
- ▨ Waste Sites (ID: W1)
- ▨ Education Sites
- ▨ Employment
- ▨ G & T Sites
- ▨ Housing Commitment
- ▨ Housing Proposal
- LDP Identified Industrial and Business Sites
- LDP Identified Mixed Use Sites
- LDP Protected Employment Sites
- Special Protection (SPA)
- Special Areas of Conservation (SAC)
- Ramsar
- Newport Southern Distributor Road
- Steelworks Access Road
- Existing Railway Lines
- Sites of Special Scientific Interest (SSSI)
- River Usk SAC and SSSI

5 How this Plan will benefit Wales

As outlined in the Wales Economic Renewal Strategy²²:

“Wales needs modern, sustainable infrastructure to underpin economic growth and the well being of our people. Our people, businesses and communities need to be well connected within and beyond Wales and have access to the right facilities and services where they live and work.”

Provision of sufficient capacity within the transport network in Wales is crucial for access to jobs, enabling the efficient distribution of freight and ensuring that barriers to future development, regeneration and growth are avoided. A key driver for the economy of South Wales is connectivity between Swansea, Cardiff and Newport and by extension, accessibility for South West Wales as well as links into Severnside, Greater Bristol and further afield.

The three pillars of sustainable development are outlined in WeITAG as:

1. Economy;
2. Environment; and
3. Society.

The potential impacts of the Plan on these three pillars is set out below.

5.1 Stimulating our economy

Analysis at a strategic level of appraisal has been undertaken, to consider the economic impacts of the Plan. The results of the appraisal will support an updated Outline Business Case, which has previously indicated high to very high value for money for a proposed motorway to the south of Newport. An Outline Business Case is being updated as part of the funding commitment for a scheme. This will present in more detail the potential economic benefits of this Plan, with consideration to the wider impacts of the scheme on Welsh and English economies and communities.

In summary, the following economic benefits will be achieved:

- A new section of motorway to the south of Newport will help to significantly reduce problems of congestion on the highway network, delivering significant travel time savings and reliability benefits for businesses and commuters, leading to lower production costs and contributing to the competitiveness of transport dependent business in Wales;
- The new section of motorway would also provide significant resilience to the network and would be likely to result in lower accident rates and associated delays that disrupt the movement of people and freight;
- Improved accessibility within South Wales and to areas of England would lead to significant agglomeration benefits and higher productivity and/or employment in some sectors; and

²² Economic Renewal: A new direction Welsh Government, (July 2010)
<http://wales.gov.uk/topics/businessandconomy/publications/economicrenewal/?lang=en>

- A new section of motorway to the south of Newport would significantly improve access to South Wales, making Wales a more attractive place to do business. Additional connectivity to Newport would increase the potential of employment sites, whilst improved network resilience would greatly reduce the economic costs of incidents of congestion or maintenance on the existing M4.

5.2 Protecting our environment

Mitigation measures will be important to limit any potential adverse effects on the environment. The nature, scale and type of mitigation to be implemented at project level will be informed by ongoing and future site specific survey work. Proposed mitigation measures would take account of the best practice adopted on previous schemes.

Air quality

Mitigation for air quality will include detailed air quality assessments at each project stage to complement the level of detail available. The results of these assessments will inform integrated emission control measures and support the development of potential traffic plans; e.g. traffic management systems, event management plans and weather management plans. Mitigation will support Newport City Council in delivering the National Air Quality Strategy by addressing its existing air quality management areas (AQMAs) around the existing M4.

Climatic factors – greenhouse gas emissions

Mitigation measures include integrating energy efficient technologies into traffic systems, including: street lights, lit signs, traffic lights, illuminated bollards and innovative traffic management 'Intelligent Transport Systems'. Further opportunities will be identified through scheme design to adopt micro renewables to power such technologies, whilst encouraging a wider shift to renewable energy to supply network services. Furthermore, greenhouse gas emissions will be considered in the development of potential traffic plans; e.g. supporting the introduction of electric vehicle infrastructure plans, speed management strategies, event management plans and weather management plans.

Climatic factors – climate change adaption

Climate change implications, such as increased rainfall and warmer summer temperatures, will be considered during the design, construction and maintenance of the highway and highway structures. During scheme development, the design and alignment of the highway will be influenced by the results of a flood consequences assessment, which will consider the potential effects of climate change. Sustainable urban drainage systems (SUDS) and porous surfaces will be integrated into the design to reduce the risk of flooding and increase infiltration. Attenuation ponds will be incorporated along the highway to receive surface runoff from the highway; these will be designed to attenuate predicted increases in rainfall thus reducing potential flood risk.

Noise

Results of noise assessment during scheme development will identify sensitive receptors and enable targeted application of noise control measures. Such measures could include: low noise surfaces, noise barriers, bunds and secondary glazing and management of any residual effect through prescribed timing and methods of working. Noise effects will also be an integral consideration in the development of traffic plans; e.g. speed management strategies and event management plans.

Biodiversity

Construction mitigation will be detailed within a Construction Environmental Management Plan (CEMP), to be prepared during scheme development. Surveys will identify any protected species to be removed from the scheme footprint prior to any construction works, with species-specific fencing to prevent their return to the site. Certain construction activities will be undertaken during specified periods to avoid effects on protected species. Connectivity will be provided for commuting and foraging protected species; including provision of underpasses, overpasses and lighting strategies as required.

Biodiversity considerations will be integrated into operational plans, e.g. winter salting plans. Attenuation ponds will ensure surface water runoff will meet Water Framework Directive (WFD) and SSSI requirements prior to entering the SSSI reed network, thus protecting notified species whilst also providing wider biodiversity enhancement. Furthermore, provision of new reens will provide replacement habitat to benefit local biodiversity, whilst the adoption of mitigation measures for Air Quality, Noise, Soils and Water will avoid indirect effects. These measures will support the local Biodiversity Action Plans and protected sites.

Scheme assessment will identify specific measures to avoid, reduce or offset effects on biodiversity features.

Population and human health

Complementary measures will benefit the local population through the improvement of walking and cycling infrastructure; i.e. encouraging more 'active' travel modes to increase physical fitness and personal health. Any such measures will be designed to be safe and avoid any community severance of footpaths and other rights of way. This will permit continued access to open space and recreation opportunities. Adoption of air quality and noise mitigation will seek to maintain good environmental standards.

Soils

Geotechnical investigations, including a preliminary risk assessment for land contamination, will be undertaken during scheme development. Results will identify any areas of land contamination and areas where remediation would be required and remediate soils, where required, in accordance with best practice. A code of practice will be developed to minimise adverse effects on soils, with consideration of maintenance and construction protocols. Consideration of soils will also be integrated into the development of operational plans, e.g. winter salting plans.

Water

Scheme design will provide mitigation for both water quality and water volume. SUDS techniques and petrol interceptors will reduce risks to water quality and flooding and increase infiltration. Surface water runoff will be directed to attenuation ponds for treatment through wetland filtration systems ensuring WFD and SSSI requirements are met prior to release into the reen network. Attenuation ponds will be designed with sufficient capacity to attenuate the predicted increase in volume and intensity of rainfall through climate change, thus reducing potential flood risk and indirect water quality effects. Provision of new reens will provide replacement water storage capacity. A flood consequences assessment, which will consider climate change implications, will inform the design and alignment of the highway during scheme development.

Material assets

Sustainable construction methods will be employed throughout the construction programme. Sustainably sourced local and/or recycled materials will be used for construction, where feasible. Carbon intensive materials will be substituted with less carbon intensive ones, where practicable. A waste hierarchy will be implemented to avoid, reduce, reuse and recycle waste through administration of a Waste Management Plan. Where possible, this would include reusing or recycling all excavated material on site.

Cultural heritage

Detailed heritage surveys and assessment of the Gwent Levels historic landscape area will be undertaken during scheme development. Results will identify sensitive receptors and enable the development of targeted mitigation measures. A set of design principles will be adopted to employ sensitive design and construction techniques in areas of historical importance. Detailed scheme design will be undertaken in partnership with relevant highways and cultural heritage consultees to avoid and minimise potential impacts.

Landscape

Detailed landscape assessment during scheme development will identify sensitive receptors and enable the development of targeted mitigation measures. Sensitive design will be employed to incorporate the highway into the landscape sympathetically, reducing the potential visual impact on properties and the environment. Landscape assessments will propose measures to retain, improve and protect characteristic features and landscape patterns. Such measures include: linking existing and new planting to enhance the visual appearance of the highway, replacing trees removed on safety grounds with planting in an acceptable nearby location, and maintain the existing character as far as possible by minimising signage and lighting. A lighting strategy will be developed to minimise light pollution including use of reflective signs rather than illuminated signs and minimising visibility splays where possible whilst maintaining motorway design standards.

5.3 Supporting our communities

The new section of motorway, which would be designed to modern standards, would provide a significant improvement in transport safety for users of the new route, located south of the urban area of Newport. Reduced congestion and delays on the existing M4 route would also provide benefits to transport safety. Improved traffic flow and less congestion would reduce the potential for delays, which may reduce travellers' perceptions of vulnerability to crime. Issues of safety and personal security will be considered during detailed scheme design.

A new section of motorway could improve access to key facilities and employment opportunities for all groups. Furthermore, the provision of a connection between the M4, M48 and the B4245 as a complementary measure would result in benefits to users of the local road network and relief to communities near to Junction 23A.

Relieving congestion and improved traffic flows would lead to improvements in the reliability and journey times of strategic bus services which use the motorway network, offering an opportunity to improve accessibility to key centres. Reclassification of the existing M4 around Newport could increase accessibility along the northern fringe of Newport. The new section of motorway is unlikely to lead to significant changes in travel by active modes but provision of additional cycling and walking infrastructure within the M4 Corridor around Newport will encourage healthy lifestyle choices and social interaction.

Access to public transport facilities and services will also be explored in more detail as part of scheme development, particularly on how this Plan can further complement the Cardiff Capital Region Metro proposals.

The new section of motorway would affect a number of existing public rights of way and local routes, which cross or adjoin the route, to which continuity of access should be maintained by means of footpath diversions and appropriate crossing facilities. The new section of motorway would also help reduce congestion on the existing motorway and local road network, to benefit community severance issues around the north of Newport.

5.4 Acceptability, feasibility, deliverability and risk

The acceptability of the new section of motorway has been explored during public consultation as part of the development of this plan, and can be further tested at a public local inquiry.

The M4 Corridor around Newport Participation Report summarises the engagement and consultation involved in the development of this Plan. The responses to the draft Plan Consultation, which ran between September and December 2013, suggested that Newport City Council is supportive of the provision of a new section of motorway, and business interests are generally supportive. In particular, the CBI strongly promotes the proposals. Environmental groups generally oppose a new section of motorway to the south of Newport and/or demand comprehensive mitigation measures to be incorporated. Whilst some individuals and organisations suggested alternatives to the main elements of this Plan, these are considered in the M4 Corridor around Newport Participation Report and Strategic Appraisal of Alternatives Report²³.

There will be on-going dialogue with key stakeholders and land owners who may be directly affected by the scheme.

Technical issues and risks will be considered in more detail as part of scheme development. This will be reported in accordance with the Design Manual for Roads and Bridges (DMRB).

Further WelTAG (scheme level) appraisal will inform the Welsh Government in its decision to fund the schemes outlined in this Plan.

Issues of affordability are addressed in Section 6.2 of this document.

5.5 Meeting the objectives for the M4 Corridor around Newport

As outlined in the WelTAG Stage 1 Report, the Welsh Government's preferred strategy is the optimal solution to addressing the problems and achieves the goals for the M4 Corridor around Newport.

An additional high quality road will create a significantly safer, easier and more reliable transport link along the M4 between Magor and Castleton, improving access to key facilities and employment opportunities.

A new route to the south of Newport will also reduce air and noise pollution along the route of the current M4, improving conditions in the Air Quality Management Areas, whilst reducing the noise nuisance to nearby residential properties in the urban areas of Newport. The new section of motorway will also reduce congestion and associated vehicle emissions; however the additional road capacity could lead to an overall increase in emissions in the longer term and this will need to be carefully monitored and supported by Welsh Government initiatives to progress culture changes, sustainable vehicles and intelligent transport infrastructure. The Plan is cognisant to public transport improvements and is complementary to the Cardiff Capital Region Metro proposals.

23 M4 Corridor around Newport reports are available at www.m4newport.com

Overall, this Plan will provide an alternative route to the existing M4 around Newport, which will provide an attractive gateway to Wales with the capacity to reduce traffic congestion and provide increased resilience on the network, to the benefit of the Welsh economy and our communities.

Next Steps

This Plan has set out the Welsh Government's preferred strategy to address transport related problems on the M4 Corridor around Newport. Following the adoption of this Plan, the Welsh Government may modify the 2006 Preferred Route, which protects the corridor to the south of Newport for planning purposes.

The Welsh Government will develop schemes in detail to deliver the Plan, building on its strategy level assessments and associated development work. Scheme development will require Environmental Impact Assessment and a decision as to whether to proceed with construction can be informed by a public local inquiry.

6.1 Timescale for delivery

The potential key dates for progressing the M4 Corridor around Newport Plan are:

1. Publication of draft Orders and Environmental Statement: Spring 2016;
2. Public Local Inquiry: Winter 2016/2017;
3. Start of Construction: Spring 2018;
4. Completion of Motorway Construction: Autumn 2021; and
5. Completion of work associated with reclassification of existing motorway: Spring 2022.

6.2 Funding

Whilst scheme costs will be developed further as part of detailed design, high level costs have been estimated for the main elements of this Plan. In summary:

- The high level cost estimate for the new section of motorway is around £1bn. Value engineering would aim to provide cost savings as part of future scheme development; and
- Options for further schemes that could be progressed after the reclassification of the existing motorway will be explored as part of scheme development²⁴. These could include improvements to increase local accessibility to key locations such as Caerleon. These will also seek to improve access by walking, cycling and public transport.

As well as Welsh Government budgets, it is planned to utilise UK borrowing powers afforded by recent initiatives, including discussions between the Welsh Government and HM Treasury/Department for Transport, as well as the work of the Silk Commission²⁵, which has created future potential funding opportunities for Welsh Government infrastructure projects.

²⁴ Including allowance for updated signage and road markings.

²⁵ The 'Silk' Commission on Devolution in Wales, which is reviewing the case for the devolution of fiscal powers and reviewing the powers of the National Assembly for Wales (March 2014) see <http://commissionondevolutioninwales.independent.gov.uk>.

For further information, please visit www.M4Newport.com or contact the
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