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Welsh Government

draft Plan Consultation Document

M4 Corridor around Newport

Llywodraeth Cymru
Welsh Government

www.cymru.gov.uk

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Glossary

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.
CBI	The Confederation of British Industry. A UK business lobbying organisation, providing a voice for employers at a national and international level.
DfT	Department for Transport. It works to support the UK transport network and plans and invests in transport infrastructure.
Do Minimum	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.
draft Plan	This is the Welsh Government's preferred strategy to solve transport related problems affecting the M4 Corridor around Newport in South Wales. If implemented, the draft Plan would lead to a new motorway (Black Route) being built to the south of Newport, alongside some complementary highway management, walking and cycling initiatives. Assessments of the draft Plan compare it to reasonable alternatives, as well as the Do Minimum scenario.
EqIA	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.

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.
HIA	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.
HRA	Habitats Regulations Assessment. A process that considers the potential effects of plans and programmes on European Sites (protected habitats).
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 Reserves. 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.
NAPPAs	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.
Newport Unlimited	The Urban Regeneration Company for Newport, working with public and private sectors to deliver physical change and support the economy of Newport.

Reasonable alternatives	These are reasonable alternatives to the draft Plan, being other options that the Welsh Government consider could solve transport related problems affecting the M4 Corridor around Newport in South Wales. If implemented, the reasonable alternatives would lead to either 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.
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).
SAM	Scheduled Ancient 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[1].
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.

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.
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[1].
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	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.
WHIASU	Wales Health Impact Assessment Support Unit.

[1] Source: Welsh Transport Planning and Appraisal Guidance (WelTAG), June 2008.

Overview

Transport and access to services, homes, work and leisure are issues affecting us all, and we hope that anyone who lives, works or travels through South Wales will participate in this draft Plan public consultation.

This draft Plan has been developed taking into account the extensive work undertaken as part of the M4 Corridor Enhancement Measures (CEM) Programme. The M4 CEM Programme was set up to explore and resolve issues of capacity, safety and resilience along the M4 Corridor around Newport, in South East Wales. It was based upon the ability to deliver and identify measures in phases to improve affordability.

As a result of on-going discussions with the UK Government there has been a significant change in the assessment of the affordability of a major enhancement of the M4. On 26 June 2013, Edwina Hart AM CStJ MBE, Minister for Economy, Science and Transport, published the following written statement:

"Addressing the capacity and resilience issues on the M4 around Newport is the top transport challenge that we face in ensuring that Wales has an effective economic infrastructure which improves our competitiveness and access to jobs and services.

As a result of ongoing discussions with the UK Government there has been a significant change in the assessment of the affordability of a major enhancement of the M4.

Building on the extensive development and consultation work undertaken on M4 Corridor Enhancement Measures (CEM), we will be consulting formally over the summer with Natural Resources Wales in order to go out to public consultation this September with a finalised draft Plan and Strategic Environmental Assessment (SEA) Report.

If implemented, the draft Plan would lead to a motorway being built south of Newport."

The main element of the draft Plan is the provision of a section of three lane motorway between Junctions 23 and 29 on the south side of Newport. It is shown as the Black Route on page 27 and 28. The draft Plan would also include the following Complementary Measures:

Table 1: draft Plan Complementary Measures

Complementary Measure	Description
Re-classify existing M4 between Magor and Castleton	Re-classify the existing motorway as a trunk road, which could enable traffic management, safety and revised access measures. These could include modifications to interchanges at Magor and Castleton. Only certain classes of motorised vehicles can use motorways and they should have no traffic signals, intersections or property access. They are free of any ground level crossings with other roads, railways, or pedestrian paths, which are instead carried by overpasses and underpasses across the highway.

M48 – B4245 Link	New single carriageway link between the M48 and B4245. This would potentially provide relief to Junction 23A and to the local road network. It may also facilitate the introduction of a park and ride facility at Severn Tunnel Junction in the future.
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.

This consultation document also provides information on two reasonable alternatives to the draft Plan and a Do Minimum scenario which considers consequences of doing nothing above what is already planned[2].

The main elements of the two reasonable alternatives are also shown on pages 23 to 25. They are the Red Route which is a dual carriageway and the Purple Route which is a three lane motorway. Both routes would also have complementary measures.

[2] This is a scenario where intervention includes doing nothing above what is already planned or committed. The Do Minimum, in this case, 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).

The draft Plan does not include public transport measures because the Welsh Government has commissioned a separate study and report on proposals to develop a metro system for South East Wales. The report will focus on how a metro system could support economic growth and regeneration at key locations across South East Wales.

The Welsh Government is seeking your views on the draft Plan, which aims to address transport related problems on the M4 Corridor around Newport. We also want your views on two reasonable alternatives to the draft Plan, the Do Minimum scenario and the associated assessments which are:

- Strategic Environmental Assessment (SEA);
- Habitats Regulations Assessment (HRA);
- Health Impact Assessment (HIA); and
- Equality Impact Assessment (EqIA).

These assessments consider the potential environmental, health and equality impacts of the draft Plan, its reasonable alternatives and the Do Minimum scenario. These are separate documents but are referred to in this draft Plan Consultation (see Section 6, page 26 for further information). A non-technical summary of the SEA Environmental Report is available.

Using the feedback received from the consultation, the Welsh Government will decide whether to adopt the draft Plan, with or without amendments, taking into account the responses to the associated assessments.

How to respond and further information

Please respond to this Consultation by using the Consultation Response Form that accompanies this document. This can be completed and sent to the address shown below:

'FREEPOST M4 CONSULTATION'

Alternatively, you can respond electronically via the following website links:

www.wales.gov.uk/consultations under Transport; or

www.m4newport.com

At *www.m4newport.com* you can also find further information about the draft Plan and its development.

This Consultation runs for 12 weeks, commencing on **23 September 2013** and closes on **16 December 2013.**

The draft Plan Consultation Document, all draft Plan assessments, and the Response Form are available to download online at *www.m4newport.com* and are available to view or to take away as paper copies at the following deposit points, during the consultation period, as well as at the following public drop-in exhibitions:

- Caldicot One Stop Shop NP26 5DB;
- Castleton Village Hall CF3 2UW;
- Liswerry Post Office NP19 0JX;
- Magor Post Office NP26 3EP;
- Newport Central Library NP20 1PA;
- Newport Information Station, Newport NP20 4AX; and
- Welsh Government, Cathays Park, Cardiff CF10 3NQ.

Details of the venues are also available at *www.m4newport.com*

Sufficient quantities of the consultation documents will be made available at each of the public drop-in exhibitions, where additional copies may also be requested for delivery.

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

For further information please contact Allan Pitt (Communications Manager) via:

- Email: *m4newport@arup.com*;
- Telephone: 029 20473727; or
- Mail: Allan Pitt, Arup, 4 Pierhead Street, Cardiff CF10 4QP.

Data protection

Any response that you submit will be seen in full by Welsh Government staff and their consultants. It may also help the Welsh Government to plan future Consultations.

The Welsh Government intend to publish a summary of the responses to this document in a draft Plan Participation Report. Some responses may also be published in full. Normally, the name and part of the address (usually the postcode) of the person or organisation that sent the response are published with the response, or as a list of all participants that responded. This helps to show that the Consultation was carried out properly. If you do not want these details published, please tell us this in writing when you send your response. We will then blank them out.

The Freedom of Information Act (2000) and the Environmental Information Regulations (2004) allow the public to ask to see information held by many public bodies, including the Welsh Government. This includes information which has not been published. However, the law also allows us to withhold information in some circumstances. If anyone asks to see information we have withheld, we will have to decide whether to release it or not. In these cases, the wishes of the person involved will always be taken into account. There might sometimes be important reasons why we would have to reveal someone's name and address, even though they have asked for them not to be published and in this situation we would always get in touch with the person and ask their views before we finally decided to reveal the information.

Public drop-in exhibitions

These are being held as part of this Consultation to provide you with the opportunity to ask questions about the various aspects of the draft Plan. The exhibitions are open between the times indicated and are intended for you to drop-in at your convenience. Staff will be on hand to answer your questions, talk you through the exhibition boards and the way you can express your opinions on the draft Plan.

Further copies of the consultation document and the Response Form will be available at the drop-in exhibitions (envelopes and labels will be available). The complimentary Response Form can be downloaded at *www.m4newport.com* and returned in the post to '*FREEPOST M4 CONSULTATION*'.

We look forward to meeting with you at one or more of the following events:

Table 2: Drop-in Exhibitions

Date	Time	Location	Venue
Wed 2 October	12-7pm	Magor	Ebenezer Baptist Church NP26 3HY
Thu 3 October			
Tue 8 October	12-7pm	Newport Centre	The Newport Centre NP20 1UH
Wed 9 October			
Tue 15 October	12-7pm	Brynglas	All Saints Church NP20 5QY
Wed 16 October			
Tue 29 October	12-7pm	Castleton	Village Hall CF3 2UW
Wed 30 October			
Mon 25 November	12-7pm	Newport Centre	The Newport Centre NP20 1UH
Tue 26 November			

1. Background

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.

Providing a facility for transporting goods, linking people to jobs and employment sites as well as serving the Welsh tourism industry, 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 M4 Motorway 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 two-lane sections, an intermittent hard shoulder and frequent junctions. It is often congested, especially during weekday peak periods resulting in slow and unreliable journey times and stop-start conditions with incidents frequently causing delays.

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 (rush hour) and have worsened as the number of users on the network has increased.

The M4 Corridor around Newport is shown is Figure 1.

Figure 1: The Location of the M4 around Newport

2 Consequences of Doing Nothing

Existing problems encountered on the M4 Corridor 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 simulation model of the area, on behalf of the Welsh Government, to analyse capacity. In line with modelling guideline recommendations, the traffic model has recently been updated to a 2012 base year, in order to ensure that it is representative of current traffic patterns.

Analysis shows that in 2012 during week day peak periods (also known as 'rush hour'), traffic flows approach 100% of capacity along sections of the M4 around Newport[3]. Once flows exceed 80% of capacity, traffic can expect operational problems (frequent traffic jams). The more congested road conditions become, the greater the risk of incidents and accidents occurring. In the future, the situation is expected to deteriorate further. As shown in Figure 2, forecasts of future traffic volumes show that in the Do Minimum situation, traffic congestion will be severe on most links by 2020 and by 2035 the motorway around Newport will be heavily congested, with all sections between J23A and J29 experiencing flows above 100% of capacity during weekday peak periods[4].

Figure 2: Observed and Forecast Week Day Peak Period Flow to Capacity[5].

Section of M4	2012	2020	2035
J28 – J29	92.3%	104.3%	115.5%
M4 J27 - J28	93.7%	104.9%	109.6%
M4 J26 - J27	89.0%	102.3%	104.6%
Brynglas Tunnels	81.6%	95.1%	106.0%
M4 J25 - J25A	73.7%	87.9%	105.0%
M4 J24 - J25	77.8%	91.5%	110.5%
M4 J23A- J24	67.4%	81.6%	102.8%
M4 J23 - J23A	64.3%	79.7%	97.8%

Flow to Capacity	Operational conditions
< 80%	Operating within capacity
80% to 100%	Operational problems occurring
> 100%	Severe operational problems

[3] Source: Arup analysis 2012.

[4] Source: Arup analysis 2012.

[5] Based on values of time and vehicle operating costs published by the DfT in October 2012.

Figure 3: Average 12-Hour Traffic Volumes

Figure 4: M4 Junction J26-J27 – Traffic Growth Index

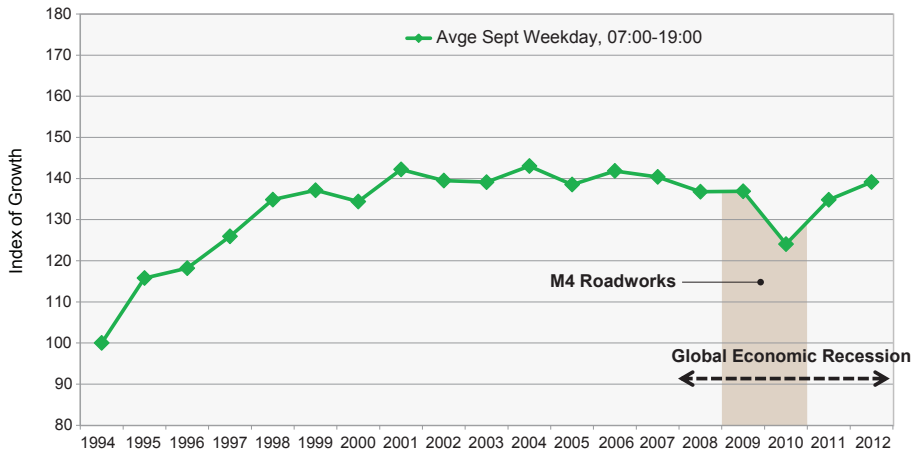


Figure 3 shows the observed traffic volumes on the M4 around Newport for a 12-hour period (7am-7pm) in 2005, compared with 2012 data. The results show that traffic levels on the motorway have remained near constant over the seven year period. The lack of growth in traffic levels on the M4 around Newport is not unexpected, as traffic growth in the UK generally has been static over the same period as a result of the economic downturn. Overall traffic levels on the M4 around Newport have remained largely static from about 2006/2007 despite the economic downturn and road works on the M4, with more recent signs of growth.

Figure 4 shows traffic growth for the section between Junctions 26 and 27, which is the only section with a complete set of traffic data available for the M4 around Newport from 2005 onwards. All other sections have very limited or no data available during this period. The growth profile for this section 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 effected by the major road works on the M4 in 2009 and 2010. Following the completion of the road works, traffic volumes have risen back to around the 2005 pre global recession level.

Figure 5: Observed and Forecast Traffic Growth

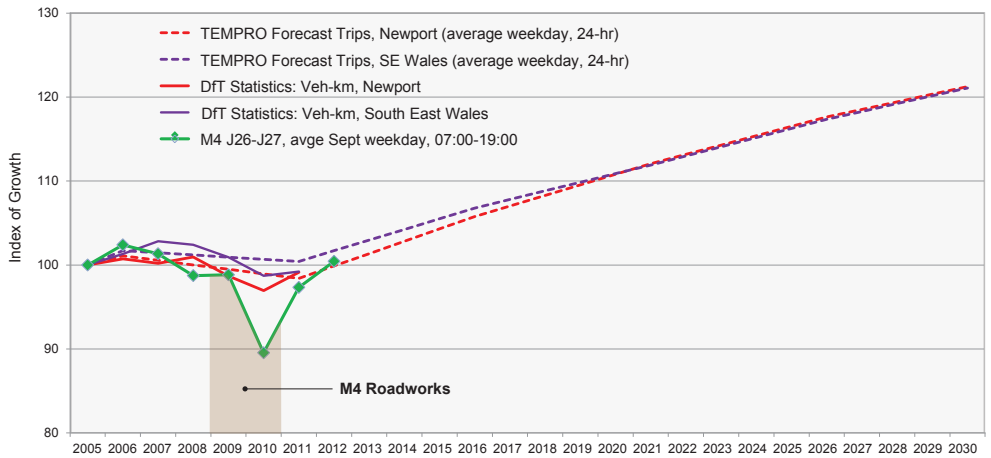


Figure 6: Average Speed on M4 J27-J26

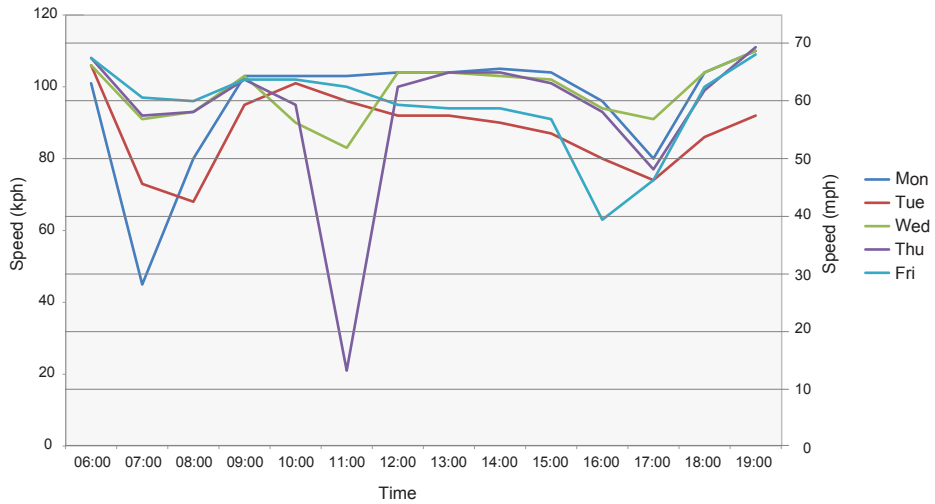


Figure 5 shows the forecast for increasing traffic growth from 2005 until 2030 for two regions relevant to the M4 corridor: the Newport local authority area and the South East Wales local authorities as a whole. This is shown alongside relevant statistics issued by the Department for Transport for total vehicle kilometres driven in these areas between 2005 and 2011. The forecasts show growth from 2011 onwards. The forecasts, known as 'TEMPRO'[6], are based on population, household, workforce and employment projections, combined with a car ownership model.

Figure 6 illustrates the average recorded speed of traffic on the motorway between Junctions 27 and 26. The figure shows eastbound traffic during the evening peak period for a typical week in May 2013. It shows that speeds can fall below 40 mph at times of congestion. Note how dramatically traffic speeds vary over short periods of time and the lack of a consistent pattern from day to day. This means that journey times, particularly for commuters, can be extremely unreliable.

[6] The National Trip End Model (NTEM) has been developed by the Department for Transport and provides a set of predictions for growth in travel demand at trip end level. The results from NTEM are provided through an interface called the Trip End Model Presentation Program (TEMPRO).

Figure 7: Average Weekday Traffic Flows through Brynglas Tunnels (March)

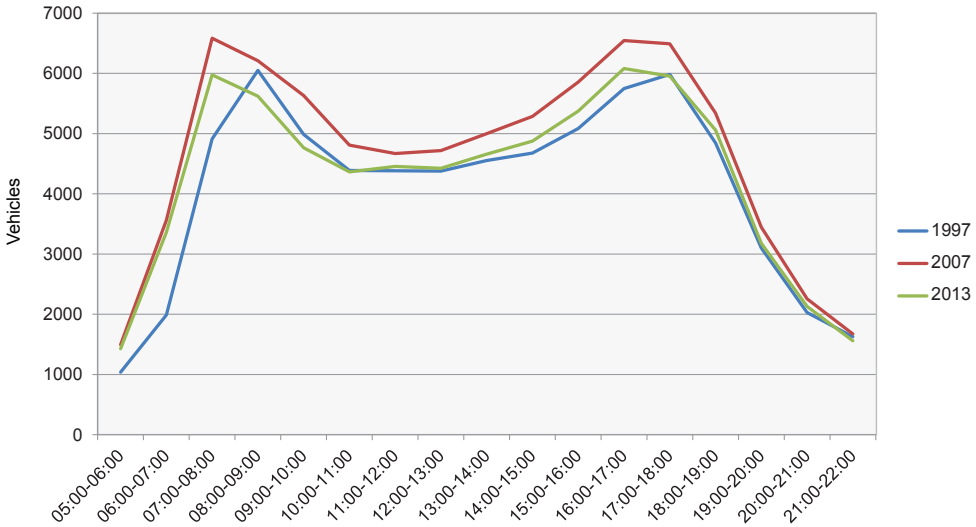
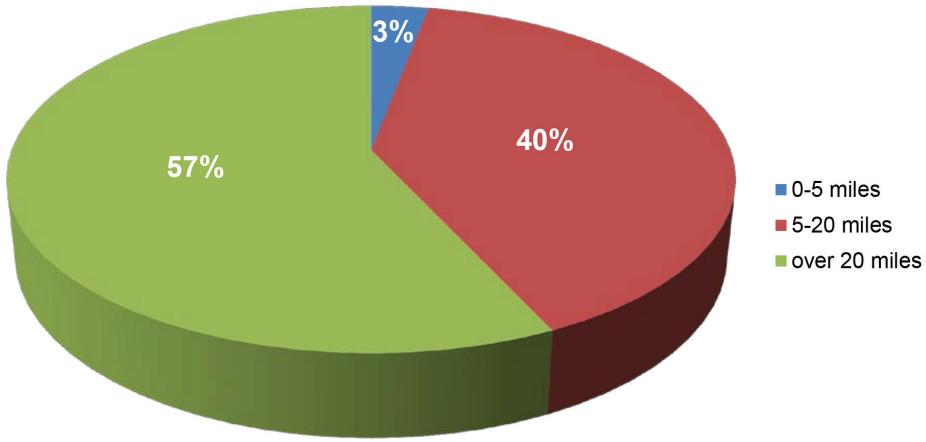


Figure 8: Estimated proportion of short, medium and long distance journeys on the M4 around Newport (2012)



In addition to traffic volumes increasing overall, Figure 7 shows that the volume of traffic using the Brynglas Tunnels in 1997 during the morning and afternoon peak traffic is now experienced, and even exceeded, over longer periods. Although current traffic volumes are lower than those experienced in 2007, following the completion of the road works, however, traffic volumes have risen back to around the 2005 pre global recession level.

There is a mixture of local and long distance traffic using the motorway. This causes problems, as vehicles move between lanes to enter and exit the motorway. Figure 8 shows that around 40% of journeys made on the M4 around Newport involve trips of less than 20 miles from start to finish, whilst the majority of journeys are over 20 miles and a small amount of journeys are less than 5 miles.

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;
- 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 satisfy an EU Directive[7] and meet current safety standards by 2014;
- 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;
- Adverse weather conditions can cause disruption to the transport network. This problem is exacerbated given the lack of capacity on alternative routes to the M4; and
- 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.

2.3 Safety

Issues with safety on the M4 Corridor around Newport include:

- Some sections have alignments (gradients and bends) that are below motorway standards and in some 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 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 3 lanes to 2 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. The first year of operation has shown a reduction in accidents.

[7] EU Directive 2004/54/EC on minimum safety requirements for tunnels in the trans-European road network.

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 and 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.

Should traffic volumes increase along the M4, this would likely 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 CO_2 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 website[8], 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 website[9].

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

- For a significant number of journeys, there are no convenient public transport alternatives to the car;
- In areas adjacent to the M4, noise levels generally exceed 55 decibels. This means that some communities around Newport are subjected to noise levels that are at least equivalent to normal conversation, a dishwasher 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 noise levels that are at least equivalent to a vacuum cleaner[10];
- 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 Wales[11].

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

[9] See http://data.wales.gov.uk/apps/noise/

[10] 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.

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

3.0 Problems, Aims and Goals

3.1 Relationship to M4 CEM Programme

The problems, goals and aims of the M4 CEM Programme were subject to dialogue during the early stages of the engagement process, with public and stakeholders.

17 problems were identified; which encompassed issues of capacity, (network) resilience, safety and sustainable development. It is considered that the problems have not changed since 2012.

15 goals were identified and each one aimed to address one or more of the problems. As the problems have not changed there was no need to revisit the goals.

3.2 Problems on the M4 Corridor around Newport

The 17 identified transport related problems[12] are listed below.

As part of the M4 CEM Consultation, respondents were asked to prioritise up to four problems out of the full list. Problems 1,5,7 and 9 shown in bold italics were selected the most times by those who responded to the M4 CEM Consultation.

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.

[12] Problems shown in bold were most frequently identified by M4 CEM respondents. See 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 motorways[13].
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.

3.3 Aims for the M4 Corridor around Newport

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

1. Make it easier and safer for people to access their homes, workplaces and services by walking, cycling, public transport or road.
2. 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.
3. To produce positive effects overall on people and the environment, making a positive contribution to the over arching Welsh Government goals to reduce greenhouse gas emissions and to making Wales more resilient to the effects of climate change.

The draft 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 Plan[14].

[13] 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.

[14] National Transport Plan (2010) & Prioritised National Transport Plan (2011) Welsh Government.

3.4 Goals of the M4 Corridor around Newport

The Welsh Government with the help of the others, identified 15 goals[15] for the M4 CEM Programme. These goals aim to address the identified transport related problems listed in section 3.2. For clarity goals are referred to as "Transport Planning Objectives" (TPOs) in the Welsh Transport Planning and Appraisal Guidance (WelTAG) (see Glossary).

The 15 goals (listed below) provide a framework in which to appraise the relative performance at a strategic level of the draft Plan, the reasonable alternatives and the Do Minimum scenario. As part of the M4 CEM Consultation respondents were asked to prioritise up to 4 goals out of the full 15. Goals 1,4,5 and 7 shown in bold italics were selected the most.

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.

[15] Goals shown in bold were most frequently identified by M4 CEM respondents. See Welsh Government, M4 Corridor Enhancement Measures (M4 CEM), Participation Report, Arup, August 2013.

4 Previous Work

Since 1991, 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 a more detailed history is documented in the M4 Corridor around Newport WelTAG Appraisal Report Stage 1 (Strategy Level)[15].

The history of previous work associated with the M4 Corridor around Newport is outlined in Figure 9 opposite.

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

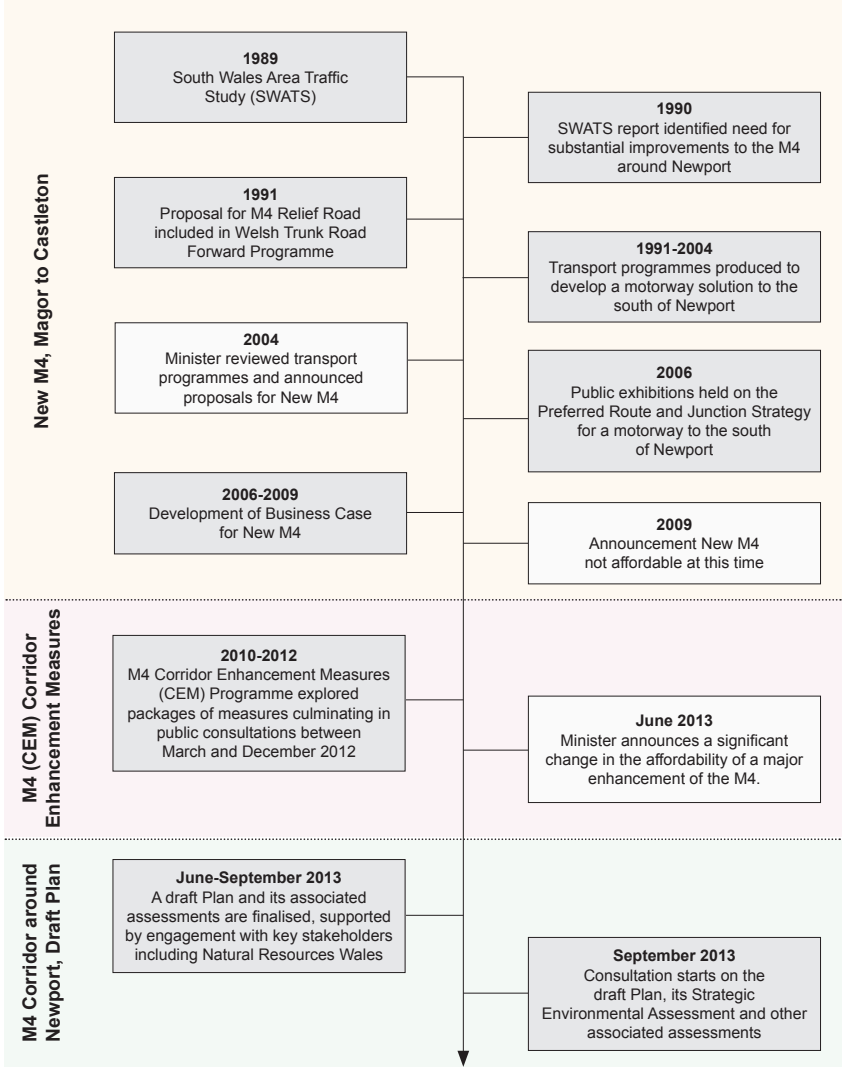
In March 1989, the then Secretary of State for Wales commissioned the South Wales Area Traffic Study (SWATS) to review traffic patterns over part of the trunk road network in South Wales in order to identify problem areas and propose possible solutions.

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 to the south of Newport (which became known as the 'M4 Relief Road', and later, the 'New M4 Project' as a new dual 3-lane motorway) 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.

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

Figure 9: History of the M4 corridor around Newport



In 2004, the then Minister for Economic Development and Transport reported on the outcome of his review of transport programmes, which were 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 re-examination 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[17] notice (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.

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) Programme[18] 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.

[17] 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.

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

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 Newport[19], 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 WelTAG Stage 1 (Strategy Level) Appraisal[20] concluded that the following measures were worthy of further consideration:

- A new dual carriageway route to the south of Newport (Red Route alternative to the draft Plan);
- Public transport enhancement; and
- Common measures.

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

[20] Welsh Government, M4 Corridor Enhancement Measures (M4 CEM), WelTAG Appraisal Report Stage 1 (Strategy Level), Arup, March 2013.

M4 Corridor around Newport draft Plan

Recent initiatives, including discussions between the Welsh Government and HM Treasury/Department for Transport, as well as the work of the Silk Commission[21], have 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) Appraisal[22] has been undertaken of options that include M4 CEM measures, provision of new 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.

[21] 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, due to report in Spring 2014.

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

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 have subsequently formed the basis for the development of the draft Plan, which is described further in Section 5.

The M4 Corridor around Newport WelTAG Stage 1 (Strategy Level) Appraisal also acknowledged that public transport enhancement will contribute to some of the goals of the M4 Corridor around Newport. This draft Plan does not include public transport measures because the Welsh Government has commissioned a separate study and report on proposals to develop a metro system for South East Wales. That report will focus on how a metro system could support economic growth and regeneration at key locations across South East Wales.

5.0 The draft Plan

In recognising the range of the goals for the M4 Corridor around Newport, the draft Plan combines both highway infrastructure and other demand management solutions in identifying a preferred strategy.

The draft Plan for the M4 Corridor around Newport (the preferred strategy) consists of:

- **A new section of 3-lane motorway between Magor and Castleton to the south of Newport along the TR111 protected corridor of the Black Route; and**
- **Complementary Measures.** (see table 3, page 23)

The reasonable alternatives to the draft Plan include:

- **A dual 2-lane all-purpose road (Red Route); or**
- **A motorway solution along a similar alignment (Purple Route); in addition to**
- **Complementary Measures.**

The draft Plan and the reasonable alternatives have been assessed against the Do Minimum scenario. The Do Minimum scenario means doing nothing above what is already planned or committed.

The preferred strategy and reasonable alternatives are described in more detail opposite and illustrated in Figure 10 on pages 27 and 28.

5.1 The draft Plan (Preferred Strategy)

Motorway following TR111 Protected Route – The Black Route and Complementary Measures

This preferred strategy comprises the construction of a new 3-lane motorway mainly following the protected TR111 Black Route, between Junctions 23 and 29, including a new crossing of the River Usk south of Newport. The River Usk is designated as a Special Area of Conservation (SAC).

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. The aim is to minimise the impact on the environment, whilst fully meeting current motorway design and safety standards. Minor changes to the alignment of the TR111 protected route could still be made, subject to further investigation, if this option is taken forward. This motorway solution would be delivered as one scheme.

If this draft Plan is adopted a junction strategy would be investigated as part of scheme's development.

The alignment of the Black Route is shown in the context of local constraints on Figure 10 on pages 27 and 28.

In addition to the new highway infrastructure, there are additional complementary measures that could assist in alleviating travel related problems within the M4 Corridor around Newport. The draft Plan's complementary measures are as follows:

Table 3: draft Plan Complementary Measures

Complementary Measure	Description
Re-classify existing M4 between Magor and Castleton	Re-classify the existing motorway as a trunk road, which could enable traffic management, safety and revised access measures. These could include modifications to interchanges at Magor and Castleton. Only certain classes of motorised vehicles can use motorways and they should have no traffic signals, intersections or property access. They are free of any ground level crossings with other roads, railways, or pedestrian paths, which are instead carried by overpasses and underpasses across the highway.
M48 – B4245 Link	New single carriageway link between the M48 and B4245. This would potentially provide relief to Junction 23A and to the local road network. It may also facilitate the introduction of a park and ride facility at Severn Tunnel Junction in the future.
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.

5.2 Reasonable Alternatives to the draft Plan

Dual 2-lane All-Purpose Road – The Red Route and Complementary Measures

This option involves the construction of an additional high quality road to the south of Newport, as a dual carriageway solution. The route aims to minimise negative impacts on local communities and the environment. As a dual carriageway on this 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.

This road would require a new crossing of the River Usk, which is designated as a Special Area of Conservation (SAC).

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.

The alignment of the Red Route is shown in the context of local constraints on Figure 10 on pages 27 and 28.

In addition, the following complementary measures could assist the Red Route in alleviating travel related problems within the M4 Corridor around Newport:

Table 4: Red Route Complementary Measures

Complementary Measure	Description
M48 – B4245 Link	New single carriageway link between the M48 and B4245. This would potentially provide relief to Junction 23A and to the local road network. It may also facilitate the introduction of a park and ride facility at Severn Tunnel Junction in the future.
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.

Motorway along Alternative Alignment to the South of Newport –

The Purple Route and Complementary Measures

In order to fully represent the highway options to the south of Newport, this option 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.

This new motorway would require a new crossing of the River Usk, which is designated as a Special Area of Conservation (SAC).

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.

The alignment of the Purple Route is shown in the context of local constraints on Figure 10 on pages 27 and 28.

In addition, the following complementary measures could assist the Purple Route in alleviating travel related problems within the M4 Corridor around Newport:

Table 5: Purple Route Complementary Measures

Complementary Measure	Description
Re-classify existing M4 between Magor and Castleton	Re-classify the existing motorway as a trunk road, which could enable traffic management, safety and revised access measures. These could include modifications to interchanges at Magor and Castleton. Only certain classes of motorised vehicles can use motorways and they should have no traffic signals, intersections or property access. They are free of any ground level crossings with other roads, railways, or pedestrian paths, which are instead carried by overpasses and underpasses across the highway.
M48 – B4245 Link	New single carriageway link between the M48 and B4245. This would potentially provide relief to Junction 23A and to the local road network. It may also facilitate the introduction of a park and ride facility at Severn Tunnel Junction in the future.
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.

5.3 Do-Minimum Scenario

The Welsh Government is committed to continuing to improve transport in South Wales. Practical measures to make travel safer and easier on the M4 Motorway around Newport have included replacing sections of steel central barriers with concrete barriers, the introduction of Variable Speed Limit systems and improvements to the roundabout at Junction 24 at Coldra.

The Do Minimum scenario means doing nothing above what is already planned or committed. This scenario therefore comprises minimum intervention but in this case does include a number of highway schemes, which are currently committed to be completed between 2020 and 2035 as follows:

Welsh Government Schemes:

- The recently opened Newport Steelworks Access Road Phases 1 and 2 (the former Llanwern Steelworks access road);
- Junction 28 roundabout, enlarged signalled gyratory scheme including associated improvements to the A467 Bassaleg roundabout and A48 Pont Ebbw; and
- A465 Heads of the Valleys Dualling (Gilwern to Hirwaun).

Newport City Council Scheme:

- Link through Newport Eastern Expansion Areas between Steelworks Access Road and A48 SDR (Cot Hill junction, signalised with full movements).

Alongside these schemes, the Do Minimum scenario also consists of a number of development proposals throughout South East Wales, which are committed through the planning process and are due to be completed at various stages to 2035.

6 Assessments of the draft Plan

In addition to this draft Plan Consultation Document, a number of environmental, health and equality based assessments of the draft Plan have been undertaken in order to address the Strategic Environmental Assessment (SEA) Regulations, Habitats Regulations Assessment (HRA) Regulations, the Equality Act (2010) and WelTAG. The documents detailed below report on the assessments of the draft Plan and form part of the M4 Corridor around Newport draft Plan Consultation:

Draft Plan – SEA Environmental Report (and Non-Technical Summary)
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, for certain plans and programmes, is a legal requirement under the SEA Directive (2001/42/EC). In Wales, this is implemented through the SEA Regulations[23].

Draft Plan – Equality Impact Assessment Report (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. An Equality Impact Assessment is a way of examining and analysing services, policies and strategies that identify existing and potential impacts on certain groups of people, and sometimes individuals. This also forms part of the WelTAG appraisal process.

Draft Plan – Health Impact Assessment Report (HIA)
WelTAG states that HIA is a mandatory requirement of transport appraisal. HIA is 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.

Draft Plan – Consideration of the Options for the M4 Corridor around Newport in relation to the requirements of the Habitats Regulations
HRA is a legal requirement under the Habitats Directive (92/43/EEC) for certain plans and programmes. In England and Wales, this is implemented through the Habitats Regulations[24]. HRA is a process that considers the potential effects of plans and programmes on European Sites. A HRA Screening Report and Statement to Inform an Appropriate Assessment will be prepared taking into account any comments arising from the consultation.

The draft Plan Consultation Document and the above assessments of the draft Plan are separate documents, but are subject to this single draft Plan Consultation. You are invited to make comments on the draft Plan Consultation Document and/or its assessments. These should be submitted using the single Consultation Response Form. All of the above are available to download online at *www.m4newport.com* and are available to view or to take away as paper copies at the deposit points listed at the beginning of this document (see page 6).

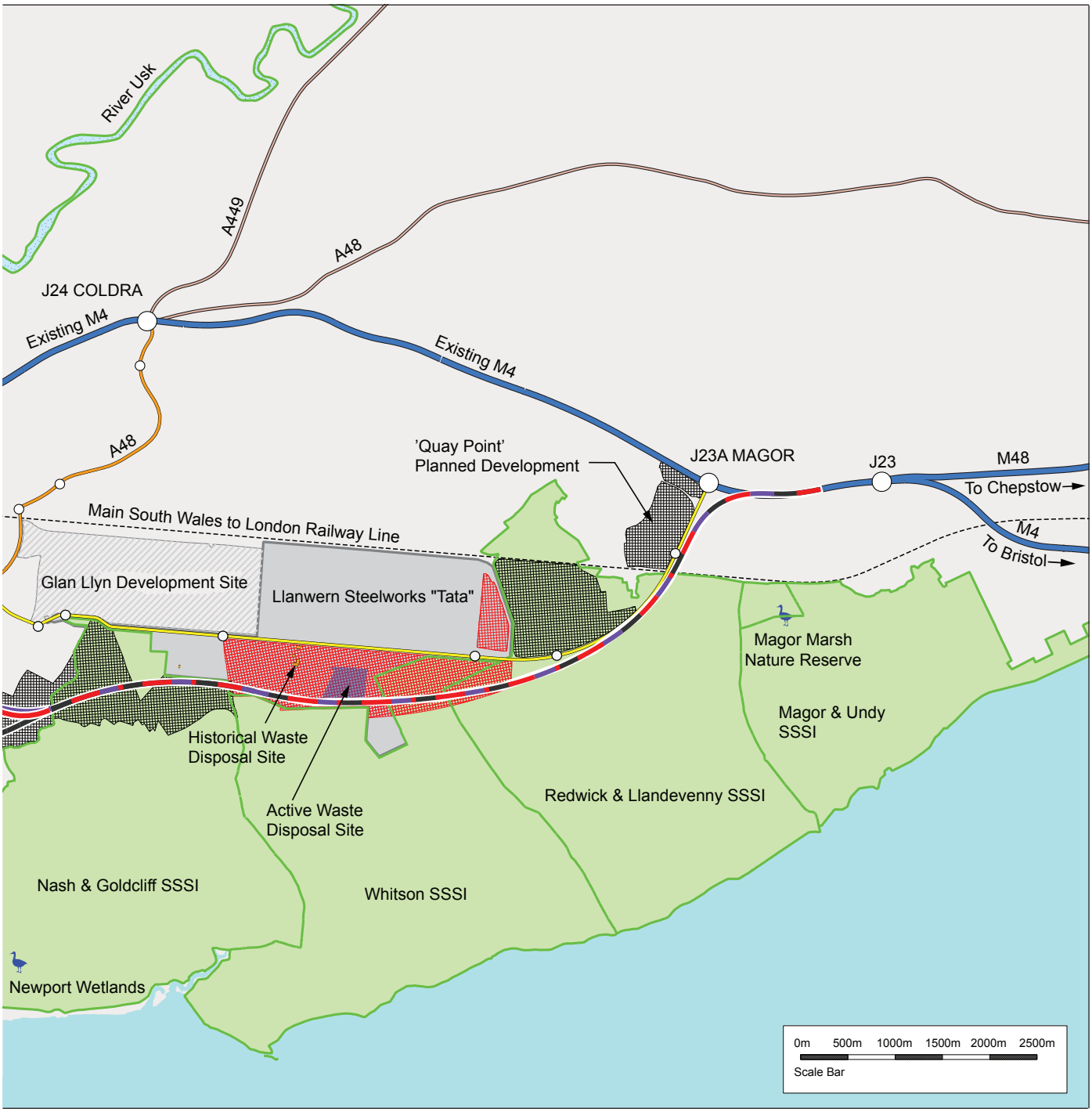
[23] Environmental Assessment of Plans and Programmes (Wales) Regulations 2004

[24] Conservation of Habitats and Species Regulations 2010.

Legend

- Black Route (the main element of the draft Plan)
- Red Route (the main element to the 'reasonable alternative' to the draft Plan)
- Purple Route (the main element to the 'reasonable alternative' to the draft Plan)
- Employment Land Allocation from Newport Unitary Development Plan

Figure 10: Black, Red and Purple Route shown within the local study area and main constraints around Newport



Newport Southern Distributor Road

Steelworks Access Road

Existing Railway Lines

Sites of Special Scientific Interest (SSSI)

River Usk SAC and SSSI

7 Appraisal

The draft Plan, its reasonable alternatives and the Do Minimum scenario have been appraised on their likely economic, social and environmental impacts, and judged against their ability to achieve the goals of the M4 Corridor around Newport. Each is appraised according to criteria recommended by WelTAG, which is a transport appraisal tool applicable to transport projects, plans and programmes in Wales.

7.1 Appraisal Summary Tables (ASTs)

WelTAG requires that a strategy, plan or programme should set out broad objectives, identify measures to achieve these and propose a typically broad package of interventions to achieve the objectives. The appropriate level of appraisal is broad and at a strategy level, it may only be possible to undertake appraisal qualitatively. When options have been narrowed down to an individual scheme or project, the appropriate level of appraisal is more detailed, often quantitative and evidence-based.

As the draft Plan is at the strategy, plan, or programme stage, it has been appraised at a strategic level. The primary aim of the appraisal at this strategy level is to filter and reduce the number of options. This process allows for a more detailed assessment of any option(s) progressed to a project level, should the draft Plan be adopted (with or without amendments). It should be noted that this strategic level appraisal has been undertaken on the basis of the information that is currently available.

The ASTs include:

- Table 6 for the draft Plan (the Black Route and its complementary measures);
- Table 7 for the reasonable alternative (Red Route and its complementary measures);
- Table 8 for the reasonable alternative (Purple Route and its complementary measures); and
- Table 9 for the Do Minimum scenario.

Comparative performance is summarised against WelTAG criteria in Table 10 and against goals (see page 17 for the list of goals) in Table 11.

The assessments described in Section 6 also provide more information on the potential environmental and social impacts of the options.

WelTAG recommends that the significance of impact for each criterion is assessed using a seven point scale. This scale includes the following assessment:

Large beneficial	(+++)
Moderate beneficial	(++)
Slight beneficial	(+)
Neutral	(0)
Slight adverse	(-)
Moderate adverse	(--)
Large adverse	(---)

WelTAG also requires that the distribution of impacts is carefully considered. This part of the assessment refers to how impacts might be experienced geographically and how they might affect different groups in society.

Please see the glossary on page 1 and 2 for definitions and acronyms.

7.2 Draft Plan (Preferred Strategy)

Motorway following TR111 Protected Route – The Black Route and its Complementary Measures

Table 6: Assessment of the draft Plan - Black Route and its Complementary Measures - against WelTAG Criteria and Goals of the M4 Corridor around Newport (TPOs)

Criteria	Assessment	Distribution	Significance
Transport Economic Efficiency (TEE)	The draft Plan could help to significantly reduce problems of congestion on the highway network, thus leading to journey time savings and improved journey time reliability. The new motorway would also provide significant resilience to the network and would be likely to result in lower accident rates. This measure is expected to deliver high to very high value for money.	All road users	(+++)
Economic Activity and Location Impact (EALI)	The draft Plan would deliver 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. 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. The draft Plan could significantly improve perceptions of access to South Wales, potentially making Wales a more attractive place to do business. Additional junctions to the south of Newport would increase the potential of employment sites. Improved network resilience would greatly reduce the economic costs of incidents of congestion or maintenance on the existing M4.	All road users	(+++)

Criteria	Assessment	Distribution	Significance
Noise	Noise impacts would be reduced along the route of the existing M4, which would reduce the noise nuisance to nearby residential properties. The majority of new noise impacts would be largely in areas where there are few noise-sensitive areas (e.g. where there are properties or sites of frequent human use).	Properties along the M4	(+)
Local Air Quality	The draft Plan would provide reductions in the levels of atmospheric pollution to a large number of local noise-sensitive areas (e.g. where there are properties or sites of frequent human use) alongside the existing M4 through Newport, by removing traffic from areas where the existing motorway is frequently congested. There would, however, be increased emissions and deterioration in air quality near the Black Route. The effects of this, however, would be of limited significance given the low number of properties affected. National Air Quality Standards would not be exceeded along the new route.	Properties along the M4	(++)

Criteria	Assessment	Distribution	Significance
Greenhouse Gas Emissions	The draft Plan will help to reduce congestion, which should have some benefit in reducing vehicle emissions. However, it is not clear whether the additional road capacity would lead to an overall increase in emissions in the longer term.	No significant distributional impacts	(+)
Landscape and townscape	The draft Plan Black Route is predominantly located within the low lying Gwent Levels. The major part of the route could be constructed on low embankment, cutting across the current grain of the landscape and disturbing the visual experience. Proposed planting can only partially mitigate the adverse visual impact. Taking into account the historic importance of the landscape and its ecological value, the significance of the impact, at opening year, would be negative. However, this could moderate over time when potential planting matures.	Local landscape impacts	(---)

Criteria	Assessment	Distribution	Significance
	At either end of the Black Route, the hillier topography is more capable of screening the road and planting schemes are likely to be more effective. In these areas, the significance of the impact of landscape and visual amenity would be 'moderate adverse'. The line of the Black Route is protected in Newport local planning policy. The Black Route would also run through a number of other land use designations including the Newport Dock Employment Zone and the Newport Eastern Expansion Area.		(---)
Biodiversity	The Black Route would cross approximately 8.5km of SSSI land resulting in the loss of up to 60ha (less than 1.5%) of the total SSSI. The principal ecological interest of the Gwent Levels SSSI lies in the reen drainage system. The SSSI is an important wildlife corridor, an essential migration route and key breeding area for many nationally and internationally important species. Other designated sites along or within the vicinity of the Black Route includes the River Usk (SAC) and (SSSI), the River Severn Special Protection Area (SPA), the River Severn Ramsar Site, and Local Nature Reserves (LNR).	Potential impact on River Usk SAC and SSSI	(---)

Criteria	Assessment	Distribution	Significance
Heritage	The Black Route crosses a number of distinct topographic zones, the cultural heritage of which is characterised by particular attributes related to landform and historic land use. Much of the Black Route would cross the marginal wetlands of the Gwent Levels, which is identified as a Historic Landscape of Outstanding Historic Interest. The area is also designated as being archaeologically sensitive in the adopted Newport UDP. The built heritage of the area includes the historic Newport Docks, a number of individual listed buildings and structures and a range of buildings characteristic of the vernacular architecture of the area. A Grade II listed building, Magor Vicarage, would need to be demolished and a standing stone Scheduled Ancient Monument (SAM) at Llanfihangel would have to be relocated in order to accommodate the scheme.	Distribution assessment not required (Para. 7.10.7 of WelTAG June 2008)	(--)

Criteria	Assessment	Distribution	Significance
Water environment	A new motorway along the alignment of the Black Route could lead to adverse effects on water quality, hydrological regimes, flood plains and areas of flood risk. Possible adverse effects on water resources could include changes to the water table, increased flood risk due to run off, pollution due to accidental spillages and changes to the existing hydrology of the catchments through which the road passes. Although the Black Route would be constructed on the floodplain of the Severn Estuary, the Gwent Levels are protected by a sea wall from inundation. The presence of the Usk Bridge would lead to a slight increase in flood levels upstream, particularly during construction, but these would be of negligible significance.	No significant distributional impact	(--)

Criteria	Assessment	Distribution	Significance
Soils	A major cutting would be required at Castleton to accommodate a new interchange for the Black Route. The overall effect on surface geological features is of negligible significance. However, the proposed development would result in permanent loss of approximately 60ha of Best and Most Versatile Agricultural Land (i.e. land within Grade 1, 2 or 3a). There are some areas of contamination along the route.	No significant distributional impacts	(--)
Transport safety	The new 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. Walking and cycling infrastructure would also utilise modern construction techniques and safety guidance to benefit the security of its users.	All road users	(+++)
Personal security	Improved traffic flow and less congestion would reduce the potential for delays, which may reduce travellers' perceptions of vulnerability to crime.	All road users	(+)

Criteria	Assessment	Distribution	Significance
Permeability	The Black Route could 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. However, the new motorway would help reduce congestion on the existing motorway and local road network, to benefit connectivity around Newport. Walking and cycling infrastructure would also help to improve connectivity within the corridor.	All road users	(+)
Physical fitness	The new motorway to the south of Newport could reduce congestion on the existing M4 motorway, thereby helping to reduce noise nuisance and air pollution. The new motorway is unlikely to lead to any changes in travel by active modes. Walking and cycling infrastructure would aim to encourage modal shift for local trips and benefit health and wellbeing.	Car users and pedestrians	(+)

Criteria	Assessment	Distribution	Significance
Social inclusion	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. Re-classification of the existing M4 around Newport could increase accessibility along the northern fringe of Newport.	Distribution assessment not required (Para. 8.6.31 of WelTAG June 2008)	(+)
Equality, Diversity & Human Rights	A new motorway and walking and cycling infrastructure could improve access to key facilities and employment opportunities for all groups. However, issues of safety and personal security will be considered at the detailed design stage.	All road users	(+)

Goals (for convenience these are listed on a removable page within the Response Form)

Criteria	Assessment	Distribution	Significance
1	An additional high quality road is likely to create a significantly safer, easier and more reliable transport link along the M4 between Magor and Castleton.	All	(+++)
2	The new motorway would form part of the European transport network and provide increased accessibility along the M4.	All	(+++)
3	The new motorway would provide an alternative route to the existing M4 around Newport with capacity to reduce congestion along the existing route and provide increased resilience on the network.	All	(+++)
4	A new motorway would improve traffic conditions on the existing network.	All	(+++)
5	A new motorway would provide increased network resilience and could significantly improve journey time reliability.	All	(+++)
6	The new motorway would provide an additional route between Magor and Castleton.	All	(++)
7	A new section of motorway would provide a safe alternative route.	All	(+++)
8	A new route to the south of Newport would help reduce air pollution along the route of the current M4, improving conditions in the Air Quality Management Areas.	All	(++)

Criteria	Assessment	Distribution	Significance
9	Noise impacts would be reduced along the route of the existing M4, which would reduce the noise nuisance to nearby residential properties.	All	(+)
10	The new motorway would help to reduce congestion and vehicle emissions; however it is not clear whether the additional road capacity would lead to an overall increase in emissions in the longer term.	All	(+)
11	A new motorway would provide a high quality and free flowing highway to the south of Newport.	All	(+++)
12	A new motorway would provide a high quality route for strategic journeys.	All	(+++)
13	A new motorway would improve traffic conditions on the existing network.	All	(+++)
14	A new motorway, walking and cycling infrastructure could improve access to key facilities and employment opportunities.	All	(+++)
15	Whilst walking and cycling infrastructure will encourage modal shift for local trips, a new motorway would not support a behavioural change towards more sustainable modes but may encourage additional car use on a free flowing route.	All	(--)

Criteria	Assessment
Public acceptability	There is co-ordinated opposition largely from local interest groups and Friends of the Earth. Most comments arising from the 2006 series of public exhibitions were made on the topic of the environment, with a third of these concerning noise. The location attracting the most comments was Magor/Undy. The acceptability of the new motorway will be tested at public inquiry.
Acceptability to other stakeholders	Newport City Council and Newport Unlimited are supportive of the provision of a new motorway. Business interests are generally supportive, while environmental groups generally oppose the scheme. The CBI strongly promotes the scheme which is included in SEWTA's Regional Transport Plan. Further engagement is likely to be needed with specific land owners who may be affected directly by the scheme, including Associated British Ports (ABP). The acceptability of the new motorway will be tested at public inquiry.
Technical and operational feasibility	The new motorway is a challenging scheme with a potential large estuarial crossing, major earthworks, soft ground, contamination, motorway interchanges and potential intermediate junctions. It would considerably improve network resilience by providing a new strategic route to the south of Newport.
Financial affordability and deliverability	A revised assessment of the ability to finance a new motorway enhances its deliverability in a shorter timescale.
Risks	There is a risk of a protracted public inquiry for any of the options progressed through the draft Plan, should it be adopted (with or without amendments).

When assessed against the WelTAG criteria, the draft Plan performs very strongly against economic criteria, strongly against social criteria and has moderate to large adverse impacts on the environment (biodiversity, landscape and townscape in particular).

When assessed at a strategic level, the draft Plan performs well against the goals of the M4 Corridor around Newport, although there is an adverse impact against only one objective; achieving a cultural shift in travel behaviour towards more sustainable choices.

It is worth noting that the Black Route has benefited from planning protection as a result of the publication of the TR111 in 2006.

The provision of a new section of motorway to the south of Newport provides the opportunity to change the function of the current M4 route around Newport to a trunk road to better integrate it into Newport's road network. For example, this could enable better access to/from residential areas such as Caerleon and St Julians by potentially facilitating the re-opening the western approaches to Junction 25. Re-classification of the M48/M4 motorway to a trunk road from east of Magor to Tredegar Park/Castleton creates the potential to simplify the new Black Route's interchanges at Magor and Castleton. However, this level of detail is more appropriate at a scheme level of appraisal.

Provision of a road link between the M48 and the B4245 would result in benefits to users of the local road network and relief to Junction 23A.

Provision of additional cycling and walking infrastructure within the M4 corridor around Newport will help encourage healthy lifestyle choices for local trips, as well as potentially supporting social interaction.

Whilst early dialogue with key stakeholders such as Natural Resources Wales has taken place, it is clear that the draft Plan will impact on affected interests and operations in different ways, depending on the eventual route and design of the Black Route motorway. These are considerations for scheme rather than strategy level appraisal. However, they would be assessed in more detail at the next stage of assessment, should the draft Plan be adopted (with or without amendments taking into account the responses to the associated assessments).

7.3 Reasonable Alternatives to the draft Plan

Dual 2-lane All-Purpose Road – The Red Route and its Complementary Measures

Table 7: Assessment of the Reasonable Alternative to the draft Plan - Red Route and its Complementary Measures - against WelTAG Criteria and Goals of the M4 Corridor around Newport (TPOs)

Criteria	Assessment	Distribution	Significance
Transport Economic Efficiency (TEE)	The Red Route could help reduce problems of congestion on the highway network, thus leading to journey time savings and improved journey time reliability. However, the new road would operate at or near capacity in the design year, which would reduce the level of relief. The new road could provide significant resilience to the network in times of maintenance on the existing M4. It could be delivered in phases that would achieve cumulative benefits and spread the investment costs. This measure is expected to deliver high value for money.	All road users	(++)
Economic Activity and Location Impact (EALI)	The construction of a new high quality road to the south of Newport would aim to support regional economic development, through enhancing accessibility to employment centres and improving the movement of people and freight. However, future accessibility could be limited by capacity of the road.	All road users	(++)

Criteria	Assessment	Distribution	Significance
Noise	Noise impacts would be reduced along the route of the existing M4, which would reduce the noise nuisance to nearby residential properties. New noise impacts would arise along the new road route, including properties in the Duffryn area.	Properties along the M4 and SDR	(0)
Local Air Quality	A new route to the south of Newport would help reduce air pollution along the route of the current M4, improving conditions in the Air Quality Management Areas. However, air quality would be expected to deteriorate in the area around the new road, although in an area where there are few noise-sensitive areas (e.g where there are properties or sites of frequent human use).	Properties along the M4 and SDR	(+)
Greenhouse Gas Emissions	The new road will help to reduce congestion, which should have some benefit in reducing vehicle emissions. However, it is not clear whether the additional road capacity would lead to an overall increase in emissions in the longer term.	No significant distributional impacts	(0)
Landscape and townscape	A new high quality road to the south of Newport would cross the River Usk and the Gwent Levels and introduce significant new infrastructure into the landscape/ townscape.	Local landscape impacts	(--)

Criteria	Assessment	Distribution	Significance
Biodiversity	The Red Route would cross the River Usk SAC and SSSI, which is an important wildlife corridor, an essential migration route and key breeding area for many nationally and internationally important species. The new road would also cross the Gwent Levels SSSIs.	Potential impact on River Usk SAC and SSSI	(---)
Heritage	Much of the Red Route would cross the marginal wetlands of the Gwent Levels, which is identified as a Historic Landscape of Outstanding Historic Interest. The area is also designated as being archaeologically sensitive in the adopted Newport UDP. The built heritage of the area includes the historic Newport Docks, a number of individual listed buildings and structures and a range of buildings characteristic of the vernacular architecture of the area.	Distribution assessment not required (Para. 7.10.7 of WelTAG June 2008)	(--)

Criteria	Assessment	Distribution	Significance
Water environment	A new high quality road to the south of Newport could lead to adverse effects on water quality, hydrological regimes, flood plains and areas of flood risk. Possible adverse effects on water resources could include changes to the water table, increase flood risk due to run off, pollution due to accidental spillages and changes to the existing hydrology of the catchments through which the road passes.	No significant distributional impacts	(--)
Soils	The Red Route would run through three distinctive topographical, geological and hydrogeological environments, including contaminated sites within the central area of the scheme. In addition, the Red Route would cross the Docks Way landfill site.	No significant distributional impacts	(---)
Transport safety	The new road would help improve road safety by reducing congestion levels, improving traffic flows, enhancing motorway junctions. On completion of the new road, it is likely that the total number of accidents on major roads in Newport would fall. Walking and cycling infrastructure would also utilise modern construction techniques and safety guidance to benefit the security of its users.	All road users	(++)

Criteria	Assessment	Distribution	Significance
Personal security	The new road would be of a high quality and is likely to benefit the perception of personal security.	All road users	(+)
Permeability	The new road would help reduce congestion on the existing motorway and local road network, to benefit severance issues around Newport. Walking and cycling infrastructure would also help to improve connectivity within the corridor.	All road users	(+)
Physical fitness	The new road to the south of Newport could reduce congestion on the existing M4 motorway, thereby helping to reduce noise nuisance and air pollution along the existing motorway corridor. The new road could also reduce severance along the existing route, which could encourage the use of alternative modes such as walking, cycling and public transport. Walking and cycling infrastructure would aim to encourage modal shift for local trips and benefit health and wellbeing.	Car users and pedestrians	(+)
Social inclusion	This option would be expected to have a negligible effect on social inclusion.	Distribution assessment not required (Para. 8.6.31 of WelTAG June 2008)	(0)

Goals (for convenience these are listed on a removable page within the Response Form)

Criteria	Assessment	Distribution	Significance
Equality, Diversity & Human Rights	A new road and walking and cycling infrastructure could improve access to key facilities and employment opportunities for all groups. However, issues of safety and personal security will be considered at the detailed design stage.	All road users	(+)
1	An additional high quality road is likely to create a significantly safer, easier and more reliable transport link along the M4 between Magor and Castleton. However, the new route is expected to be close to capacity by 2035, which would make it less effective in relieving the existing M4.	All	(++)
2	The new road would provide additional capacity east/west.	All	(++)
3	The new road would provide an alternative route to the M4 with capacity to reduce congestion along the existing route and provide increased resilience on the network.	All	(++)
4	A new road could improve traffic conditions on the existing network.	All	(+)

Criteria	Assessment	Distribution	Significance
5	A new road would provide increased network resilience and could significantly improve journey time reliability. However, the new route is expected to be close to capacity by 2035, which would make it less effective in relieving the existing M4.	All	(++)
6	The new road would provide an additional route between Magor and Castleton.	All	(+)
7	A new road could improve traffic conditions on the existing network and provide a safe alternative route.	All	(++)
8	A new route to the south of Newport would help reduce air pollution along the route of the current M4, improving conditions in the Air Quality Management Areas.	All	(+)
9	Noise impacts would be reduced along the route of the existing M4, which would reduce the noise nuisance to nearby residential properties.	All	(+)

Criteria	Assessment	Distribution	Significance
10	The new road would help to reduce congestion and vehicle emissions; however, the new route is expected to be close to capacity by 2035, which would make it less effective in relieving congestion. It is not clear whether the additional road capacity would lead to an overall increase in emissions in the longer term.	All	(0)
11	A new road could provide a high quality and free flowing highway route to the south of Newport.	All	(++)
12	A new road would result in a reduction of traffic flows on the M4 motorway and would thus improve operating conditions on the motorway. However, the new route is expected to be close to capacity by 2035, which would make it less effective in relieving the existing M4.	All	(++)
13	A new road could improve traffic conditions on the existing network.	All	(++)
14	A new road and walking and cycling infrastructure could improve access to key facilities and employment opportunities.	All	(++)

Criteria	Assessment	Distribution	Significance
15	Whilst walking and cycling infrastructure would encourage modal shift for local trips, a new road would not support a behavioural change towards more sustainable modes, but may encourage additional car use on a free flowing route.	All	(--)

Criteria	Assessment
Public acceptability	The new road could create economic and social benefits. However, the environmental impact of the new road to the south of Newport is likely to attract opposition from those who prioritise a need to protect the environment over the possible economic benefits of the scheme. The new route would be in close proximity to properties in Duffryn, which may attract opposition in light of minor noise and air pollution increases in this area. The acceptability of the new road will be tested at public inquiry.
Acceptability to other stakeholders	The new road could help address many of the problems caused by congestion on the M4 in a phased and affordable manner, thus could attract support and be acceptable to other stakeholders, particularly business groups. However, possible adverse impacts on the environment could attract opposition from environmental groups and the wider public who prioritise a need to protect the environment over the possible economic benefits of the scheme. The new road would impact upon the Docks Way landfill site. This could result in objection by Newport City Council and by Natural Resources Wales. The acceptability of the new road will be tested at public inquiry.

Criteria	Assessment
Technical and operational feasibility	This reasonable alternative to the draft Plan is at a strategy level and therefore the technical and operational feasibility risks require further exploration. The new road would include a crossing of the River Usk and the Docks Way landfill site. This will require consideration of suitable structures and land contamination issues.
Financial affordability and deliverability	A revised assessment of the ability to finance a new road enhances its deliverability in a shorter timescale.
Risks	The new route would impact upon a landfill site requiring legal/licencing processes to be successfully negotiated. There is a risk of a protracted public inquiry for any of the options progressed through the draft Plan, should it be adopted (with or without amendments).

Despite scoring strongly against economic and social criteria, the Red Route performs comparatively poorly with the Black Route whilst the Red Route, Black Route and Purple Route would all have negative impacts on the environment. Overall, the Red Route alignment does not perform as strongly as the motorway options and scores less well than the motorway options against 13 out of 15 goals.

The Red Route has significantly reduced capacity compared with the two motorway scenarios and would attract less traffic. By 2035, the Red Route would be expected to be operating at or near capacity and, as such, would attract less traffic than the motorway options.

A motorway solution will offer greater value for money and better meet the objectives for the project.

It is worth noting that the Black Route has benefited from planning protection as a result of the publication of the TR111 in 2006 whereas the Red Route represents a new line of investigation. The Red Route has an increased delivery risk when compared to the Black Route. These risks are mainly associated with crossing the Docks Way landfill site, through Newport Docks and across the River Usk. There are also on-going developments and potential further development sites along the alignment of the Red Route.

Crossing the Docks Way landfill would require a new Environmental Permit Application. Whilst this is likely to be achievable it introduces a major risk in the development of the Red Route and indeed was one of the principal reasons the original M4 Relief Road followed the line of the Black Route.

The Red Route alignment through the Docks and across the River Usk would make it difficult to accommodate the operational requirements of businesses that are reliant on using the Docks and River Usk for trade, resulting in possible substantial compensation claims and threatening jobs.

The provision of a road link between the M48 and the B4245 would provide benefits to users of the local road network and relief to Junction 23A. Furthermore, provision of additional cycling and walking infrastructure within the M4 Corridor around Newport would help encourage healthy lifestyle choices for local trips, as well as supporting social interaction.

Motorway along Alternative Alignment to the South of Newport –
The Purple Route and its Complementary Measures

Table 8: Assessment of the Reasonable Alternative to the draft Plan - Purple Route and its Complementary Measures - against WelTAG Criteria and Goals of the M4 Corridor around Newport (TPOs)

Criteria	Assessment	Distribution	Significance
Transport Economic Efficiency (TEE)	A motorway solution could help to significantly reduce problems of congestion on the highway network, thus leading to journey time savings and improved journey time reliability. A new motorway would also provide significant resilience to the network. This measure is expected to deliver high to very high value for money.	All road users	(+++)
Economic Activity and Location Impact (EALI)	The construction of a motorway to the south of Newport would aim to support regional economic development, through enhancing accessibility to employment centres and improving the movement of people and freight. However, there are on-going developments and potential further development sites that might be affected along the alignment of this route.	All road users	(++)
Noise	Noise impacts would be reduced along the route of the existing M4, which would reduce the noise nuisance to nearby residential properties. However, any benefits would likely be offset by new noise impacts along the new route that would impact on properties in the Duffryn area. The majority of new noise impacts would be largely in areas where there are few noise-sensitive areas (e.g where there are properties or sites of frequent human use).	Properties along the M4 and SDR	(0)
Local Air Quality	A new motorway along the Purple Route would help reduce air pollution along the route of the current M4, improving conditions in the Air Quality Management Areas. However, any benefits would be offset by air quality deterioration in the Duffryn area around the new road, in addition to the Gwent Levels, although in an area where there are noise-sensitive areas (e.g where there are properties or sites of frequent human use).	Properties along the M4 and SDR	(+)

Criteria	Assessment	Distribution	Significance
Greenhouse Gas Emissions	A new motorway would help to reduce congestion, which should have some benefit in reducing vehicle emissions. However, it is not clear whether the additional road capacity would lead to an overall increase in emissions in the longer term.	No significant distributional impacts	(+)
Landscape and townscape	The Purple Route would cross the River Usk and the Gwent Levels and introduce significant new infrastructure into the landscape/townscape.	Local landscape impacts	(---)
Biodiversity	The Purple Route would cross the River Usk SAC and SSSI, which is an important wildlife corridor, an essential migration route and key breeding area for many nationally and internationally important species. The new road would also cross the Gwent Levels SSSIs.	Potential impact on River Usk SAC and SSSI	(---)
Heritage	The Purple Route would cross the Gwent Levels Historic Landscape and affect land with significant archaeological sensitivity.	Distribution assessment not required (Para. 7.10.7 of WelTAG June 2008)	(--)

Criteria	Assessment	Distribution	Significance
Water environment	A new motorway along the alignment of the Purple Route could lead to adverse effects on water quality, hydrological regimes, flood plains and areas of flood risk. Possible adverse effects on water resources could include changes to the water table, increase flood risk due to run off, pollution due to accidental spillages and changes to the existing hydrology of the catchments through which the road passes.	No significant distributional impacts	(--)
Soils	The Purple Route would run through three distinctive topographical, geological and hydrogeological environments, including potentially contaminated sites within the central area of the scheme.	No significant distributional impacts	(---)
Transport safety	The new 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. Walking and cycling infrastructure would also utilise modern construction techniques and safety guidance to benefit the security of its users.	All road users	(+++)

Criteria	Assessment	Distribution	Significance
Personal security	Improved traffic flow and less congestion would reduce the potential for delays, which may reduce travellers' perceptions of vulnerability to crime.	All road users	(+)
Permeability	The new motorway would help reduce congestion on the existing motorway and local road network, to improve connectivity around Newport. Walking and cycling infrastructure would also help to improve connectivity within the corridor.	All road users	(+)
Physical fitness	The new motorway to the south of Newport could reduce congestion on the existing M4 motorway, thereby helping to reduce noise nuisance and air pollution along the existing motorway corridor. The new motorway is unlikely to lead to any changes in travel by active modes. Walking and cycling infrastructure would aim to encourage modal shift for local trips and benefit health and wellbeing.	Car users and pedestrians	(+)

Criteria	Assessment	Distribution	Significance
Social inclusion	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. Re-classification of the existing M4 around Newport could increase accessibility along the northern fringe of Newport.	Distribution assessment not required (Para. 8.6.31 of WelTAG June 2008)	(+)
Equality, Diversity & Human Rights	A new motorway and walking and cycling infrastructure could improve access to key facilities and employment opportunities for all groups. However, issues of safety and personal security will be considered at the detailed design stage.	All road users	(+)

Goals (for convenience these are listed on a removable page within the Response Form)

Criteria	Assessment	Distribution	Significance
1	An additional high quality road is likely to create a significantly safer, easier and more reliable transport link along the M4 between Magor and Castleton.	All	(+++)
2	A new motorway would form part of the European transport network and provide increased accessibility along the M4.	All	(+++)
3	A new motorway would provide an alternative route to the existing M4 around Newport with capacity to reduce congestion along the existing route and provide increased resilience on the network.	All	(+++)
4	A new motorway could improve traffic conditions on the existing network.	All	(+++)
5	A new motorway would provide increased network resilience and could significantly improve journey time reliability.	All	(+++)
6	A new motorway would provide an additional route between Magor and Castleton.	All	(++)
7	A new section of motorway would provide a safe alternative route.	All	(+++)
8	A new route to the south of Newport would help reduce air pollution along the route of the current M4, improving conditions in the Air Quality Management Areas.	All	(++)

Criteria	Assessment	Distribution	Significance
9	Noise impacts would be reduced along the route of the existing M4, which would reduce the noise nuisance to nearby residential properties.	All	(+)
10	A new motorway would help to reduce congestion and vehicle emissions; however it is not clear whether the additional road capacity would lead to an overall increase in emissions in the longer term.	All	(+)
11	A new motorway would provide a high quality and free flowing highway to the south of Newport.	All	(+++)
12	A new motorway would provide a high quality route for strategic journeys.	All	(+++)
13	A new motorway could improve traffic conditions on the existing network.	All	(+++)
14	A new motorway, walking and cycling infrastructure could improve access to key facilities and employment opportunities.	All	(+++)
15	Whilst walking and cycling infrastructure will encourage modal shift for local trips, a new motorway would not support a behavioural change towards more sustainable modes, but may encourage additional car use on a free flowing route.	All	(--)

Criteria	Assessment
Public acceptability	The new road could create economic and social benefits. However, the environmental impact of a new motorway along the Purple Route is likely to attract opposition from those who prioritise a need to protect the environment over the possible economic benefits of the scheme. The new route would be in close proximity to properties in Duffryn, which may attract opposition in light of noise and air pollution increases in this area. The acceptability of the new motorway will be tested at public inquiry.
Acceptability to other stakeholders	A new motorway would address the problems caused by congestion on the existing M4. However, possible adverse impacts on the environment could attract opposition from environmental groups and the wider public who prioritise a need to protect the environment over the possible economic benefits of the scheme. As per the Red Route these risks are mainly associated with the alignment crossing the Docks Way landfill site, Newport docks and the River Usk. This could result in objection by Newport City Council and by Natural Resources Wales. The acceptability of the new motorway will be tested at public inquiry.
Technical and operational feasibility	This reasonable alternative to the draft Plan is at a strategy level and therefore the technical and operational feasibility risks require further exploration. The new road would include a crossing of the River Usk and the Docks Way landfill site. This will require consideration of suitable structures and land contamination issues.
Financial affordability and deliverability	A revised assessment of the ability to finance a new motorway enhances its deliverability in a shorter timescale.

Criteria	Assessment
Risks	This reasonable alternative to the draft plan is at a strategy level and therefore the risks require further exploration. The new route would significantly impact on a landfill site requiring legal processes to be successfully considered. Challenge from public and/or stakeholders who may oppose the scheme on grounds of likely environmental or social impact may also require consideration. There is a risk of a protracted public inquiry for any of the options progressed through the draft Plan, should it be adopted (with or without amendments).

When assessed at a strategic level, both the Purple Route and Black Route motorway options perform the same against the goals, although when assessed against the WelTAG criteria, the Black Route out-performs the Purple. This is principally due to the proximity of the Purple Route to the residential area of Duffryn including Duffryn High School and other potential development areas.

It is worth noting that the Black Route has benefited from planning protection as a result of the publication of the TR111 in 2006 whereas the Purple Route represents a new line of investigation. The Purple Route therefore has an increased delivery risk when compared to the Black Route. As per the Red Route, these risks are mainly associated with the alignment crossing the Docks Way landfill site, Newport Docks and the River Usk. There are also on-going developments and potential further development sites along the alignment of the Purple Route.

Crossing the Docks Way landfill would require a new Environmental Permit Application. Whilst this is likely to be achievable it introduces a major risk in the development of the Purple Route and indeed was one of the principal reasons the original M4 Relief Road followed the line of the Black Route.

The Purple Route alignment through the Docks and across the River Usk could make it difficult to accommodate the operational requirements of businesses that are reliant on using the Docks and River Usk for trade, resulting in possible substantial claims for compensation and threatening jobs.

As outlined for the draft Plan, the provision of a new section of motorway to the south of Newport provides the opportunity to change the function of the current M4 route around Newport to a trunk road to better integrate it into Newport's road network. Furthermore, provision of a road link between the M48 and the B4245 would result in benefits to users of the local road network and relief to Junction 23A. Provision of additional cycling and walking infrastructure within the M4 Corridor around Newport would help encourage healthy lifestyle choices for local trips, as well as supporting social interaction. However, this level of detail is more appropriate at a scheme level of appraisal.

7.4 Do Minimum scenario

Table 9: Assessment of the Do Minimum scenario against WelTAG Criteria and Goals of the M4 Corridor around Newport (TPOs)

Criteria	Assessment	Distribution	Significance
Transport Economic Efficiency (TEE)	Congestion on the M4 between junctions 24 and 29 is already thought to be impacting on business performance and the level of congestion is expected to increase. Cardiff and Newport have ambitious regeneration strategies and Monmouthshire County Council is developing areas around Junction 23A of the M4. Traffic congestion on the M4 could hamper these plans and impact negatively on regional economic development.	All	(---)

Criteria	Assessment	Distribution	Significance
Economic Activity and Location Impact (EALI)	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 and consumers and economic performance can be affected. Possible increased congestion would adversely impact on the movement of commuters. The M4 is heavily used by commuters and there are already significant movements of commuters between Wales and England over the Severn Crossings. Increased congestion would result in higher journey times for commuters, reducing the effective travel to work area.	All	(---)
Noise	High traffic volumes along the M4 contribute to noise pollution, compromising the amenity of neighbouring residential communities.	Properties along the M4	(--)
Local Air Quality	High traffic volumes along the M4 contribute to poor air quality, compromising the amenity of neighbouring residential communities. This would affect the conditions of four out of Newport's seven Air Quality Management Areas (AQMAs) that are associated with the M4.	Properties along the M4	(--)

Criteria	Assessment	Distribution	Significance
Greenhouse Gas Emissions	Traffic conditions are expected to deteriorate and slow-moving, stop/start driving conditions can lead to higher CO2 emissions than free-flowing traffic.	No significant distributional impacts	(-)
Landscape and townscape	There would be no or limited change as a result of the Do Minimum scenario.	No significant landscape impacts	(0)
Biodiversity	There would be no or limited change as a result of the Do Minimum scenario.	No significant distributional impacts	(0)
Heritage	There would be no or limited change as a result of the Do Minimum scenario.	No significant distributional impacts	(0)
Water environment	There would be no or limited change as a result of the Do Minimum scenario.	No significant distributional impacts	(0)
Soils	There would be no or limited change as a result of the Do Minimum scenario.	No significant distributional impacts	(0)

Criteria	Assessment	Distribution	Significance
Transport safety	The more congested road conditions become, the greater the risk of incidents and accidents occurring. The most common accidents on the M4 between junctions 25 and 28 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.	All road users	(--)
Personal security	The Do Minimum scenario would lead to continuing traffic congestion on the existing motorway which would impact on journey time reliability. There would be limited improvements to infrastructure which would negatively impact on many vulnerable groups who rely on transport modes other than the car to access activities and services.	No significant distributional impacts	(0)
Permeability	The Do Minimum scenario would lead to continuing traffic congestion on the existing motorway which would impact on journey time reliability. This would bring negative impacts to those reliant on the car to access facilities, services and employment opportunities, as well as those utilising public transport for this purpose, with traffic diverting to local roads during peak periods.	No significant distributional impacts	(-)

Criteria	Assessment	Distribution	Significance
Physical fitness	Air quality and noise issues could also continue to increase along the existing motorway corridor, impacting on residential areas to the north of Newport.	No significant distributional impacts	(0)
Social inclusion	The Do Minimum scenario would lead to continuing traffic congestion on the existing motorway which would impact on journey time reliability. This would adversely impact on access to services, facilities and employment opportunities for all those with access to a car, and who rely on public transport due to continued problems associated with motorway traffic diverting onto local roads to avoid peak congestion. The continuing problems would further hamper economic growth and prosperity in the region.	No significant distributional impacts	(-)
Equality, Diversity & Human Rights	The Do Minimum scenario would lead to continuing traffic congestion on the existing motorway which will impact on journey time reliability. This would impact those vulnerable groups reliant on the car to access services, facilities and employment opportunities. This continuation of reported problems would also continue to hamper economic growth potential of the region, restricting the movement of people and freight, particularly at peak periods.	No significant distributional impacts	(0)

Goals (for convenience these are listed on a removable page within the Response Form)

Criteria	Assessment	Distribution	Significance
1	As congestion increases, safety conditions and journey time reliability would deteriorate.	All	(---)
2	Travel conditions on the M4 are forecast to worsen over time, reducing accessibility on the transport network.	All	(--)
3	There would be no or limited impact as a result of the Do Minimum scenario.	All	(0)
4	There would be no or limited impact as a result of the Do Minimum scenario.	All	(0)
5	Increased levels of congestion would reduce journey time reliability, particularly at peak travel times.	All	(--)
6	There would be no or limited impact as a result of the Do Minimum scenario.	All	(0)
7	Increased congestion would exacerbate the risk of incidents and accidents occurring.	All	(--)
8	Increased traffic volumes and stop/start conditions would exacerbate poor air quality, particularly in the AQMAs along the route of the M4 around Newport.	All	(--)

Criteria	Assessment	Distribution	Significance
9	Higher traffic volumes along the M4 will contribute to noise pollution.	All	(--)
10	Traffic conditions are expected to deteriorate and stop/start driving conditions would lead to higher emissions.	All	(--)
11	Traffic conditions are expected to deteriorate and stop/start driving conditions would create an adverse travel experience, leading to higher levels of driver stress.	All	(---)
12	Increased congestion on the M4 may lead to severe disruption and congestion on the local and regional highway network, with significant delays and adverse effects on local roads being used as diversions.	All	(---)
13	There would be no or limited impact as a result of the Do Minimum scenario.	All	(0)
14	There would be no or limited impact as a result of the Do Minimum scenario.	All	(0)
15	There would be no or limited impact as a result of the Do Minimum scenario.	All	(0)

Criteria	Assessment
Public acceptability	Traffic congestion during peak periods results in unreliable journey times, which impacts on the ability of individuals to access job opportunities and discourages investment from high value businesses. Transport congestion also has environmental impacts affecting local communities. Increasing levels of congestion are unlikely to be acceptable to the public.
Acceptability to other stakeholders	The M4 motorway plays the vital role in providing the east/west strategic road link that underpins the economy of South Wales and facilitates the mass movement of people and goods to stimulate economic and social activity within the region and beyond. Any disruption to the operation of the motorway in South Wales has a negative impact upon economic development, particularly around Cardiff, Newport and beyond. Congestion is cited by the business community in South Wales as a barrier to economic growth and increasing levels of congestion are unlikely to be acceptable to stakeholders.
Technical and operational feasibility	Planned or committed schemes as part of the Do Minimum scenario have demonstrated their feasibility as part of their associated planning stages.
Financial affordability and deliverability	Planned or committed schemes as part of the Do Minimum scenario have demonstrated their affordability and deliverability as part of their associated planning stages.
Risks	There are no or limited risks associated with Planned or committed schemes as part of the Do Minimum scenario.

The Do Minimum scenario performs poorly against the goals of the M4 Corridor around Newport. Furthermore, increasing congestion resulting from capacity and resilience problems means that it also performs particularly poorly against economic criteria, posing a significant constraint to the economy of South Wales. Impacts on social criteria are largely neutral or minor adverse, apart from where increased traffic congestion adversely impacts on safety. Whilst the Do Minimum scenario performs poorly against noise and local air quality criteria due to a predicted increase in traffic and congestion on the existing M4 Motorway around Newport, the impact on the environment remains largely neutral (see Section 2.4, page 14 for more information about NAPPAs and AQMA).

7.5 Comparative Performance

Table 10: Comparative Performance against WelTAG Criteria

Criteria	draft Plan - Black Route and Com-plementary Measures	Reasonable Alternative - Red Route and Com-plementary Measures	Reasonable Alternative - Purple Route and Com-plementary Measures	Do Minimum scenario
Economy				
Transport Economic Efficiency (TEE)	(+++)	(++)	(+++)	(---)
Economic Activity and Location Impact (EALI)	(+++)	(++)	(++)	(---)
Environment				
Noise	(+)	(0)	(0)	(--)
Local Air Quality	(++)	(+)	(+)	(--)
Greenhouse Gas Emissions	(+)	(0)	(+)	(-)
Landscape and townscape	(---)	(--)	(---)	(0)
Biodiversity	(---)	(---)	(---)	(0)
Heritage	(--)	(--)	(--)	(0)
Water environment	(--)	(--)	(--)	(0)
Soils	(--)	(---)	(---)	(0)

Criteria	draft Plan - Black Route and Com-plementary Measures	Reasonable Alternative - Red Route and Com-plementary Measures	Reasonable Alternative - Purple Route and Com-plementary Measures	Do Minimum scenario
Social				
Transport safety	(+++)	(++)	(+++)	(--)
Personal security	(+)	(+)	(+)	(0)
Permeability	(+)	(+)	(+)	(-)
Physical fitness	(+)	(+)	(+)	(0)
Social inclusion	(+)	(0)	(+)	(-)
Equality, Diversity & Human Rights	(+)	(+)	(+)	(0)

When assessed against the WelTAG criteria, the draft Plan performs strongly overall; strongest against economic and social criteria, with the Black Route performing more attractively with less distance to be travelled and hence lower journey times. Whilst costs are similar, the Black Route would be expected to produce higher economic benefits compared to the other motorway option in the Purple Route. All highway options result in moderate to large adverse impacts on the environment (biodiversity, landscape and townscape in particular).

Table 11: Comparative Performance against the goals of the M4 Corridor around Newport

(for convenience the goals are listed on a removable page within the response form)

Goals (for convenience these are listed on a removable page within the Response Form)	draft Plan - Black Route and Complementary Measures	Reasonable Alternative - Red Route and Complementary Measures	Reasonable Alternative - Purple Route and Complementary Measures	Do Minimum scenario
1	(+++)	(++)	(+++)	(---)
2	(+++)	(++)	(+++)	(--)
3	(+++)	(++)	(+++)	(0)
4	(+++)	(+)	(+++)	(0)
5	(+++)	(++)	(+++)	(--)
6	(++)	(+)	(++)	(0)
7	(+++)	(++)	(+++)	(--)
8	(++)	(+)	(++)	(--)
9	(+)	(+)	(+)	(--)
10	(+)	(0)	(+)	(--)
11	(+++)	(++)	(+++)	(---)
12	(+++)	(++)	(+++)	(---)
13	(+++)	(++)	(+++)	(0)
14	(+++)	(++)	(+++)	(0)
15	(--)	(--)	(--)	(0)

The Do Minimum scenario performs poorly against the majority of the goals of the M4 Corridor around Newport, whilst the motorway solutions perform better than the Red Route. For the draft Plan and its reasonable alternatives, there is an adverse impact against only one objective; achieving a cultural shift in travel behaviour towards more sustainable choices. The draft Plan performs strongly against most of the goals.

8 Next steps

Once the draft Plan Consultation has ended, all responses will be collated, analysed and considered. A Participation Report will be prepared, which will summarise the responses to the engagement and consultation process. The responses will also help the Welsh Government to review and finalise the associated assessments, as set out below:

- The comments received on the SEA Environmental Report will be given consideration and taken into account in an SEA Statement. If the draft Plan is adopted, an SEA Statement will be published in accordance with the SEA Regulations. The purpose of the SEA Statement is to outline how the environmental assessment and consultation influence the decision making process;
- The HRA Reports will be finalised and published to take into account any comments from Natural Resources Wales, and others, if appropriate, in accordance with the HRA Regulations;
- The HIA Report will be updated to take into account any comments received from the Wales Health Impact Assessment Support Unit (WHIASU) and others; and
- The EqIA Report will be updated to take into account any comments received from the Welsh Government's Fairer Futures department and Department of Economy, Transport and Science's Equality Support Unit and others. This will also take into consideration the equality data being collected as part of the single Response Form to the draft Plan Consultation.

The Welsh Government will then use the responses to the draft Plan Consultation to decide whether to adopt the draft Plan, with or without amendments taking into account the responses to the associated assessments.

The Welsh Government then may decide to announce a preferred route which would protect the corridor for planning purposes.

Every individual or organisation who responds to the consultation, for which we have contact details, will be informed of the decision made by the Welsh Government.

Should the draft Plan be adopted, we will be engaging with local people and other interested parties on specific and detailed elements of any of the options to be progressed in due course. These options will require further work as they are developed for delivery.

Thank you for your interest and input into the M4 Corridor around Newport draft Plan.

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For further information, please contact
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