

Number: WG 16557

Welsh Government

Consultation Document

November 2012

**M4 Corridor Enhancement Measures (CEM)
Strategic Environmental Assessment (SEA)
Environmental Report Non-Technical Summary**



Llywodraeth Cymru
Welsh Government

www.cymru.gov.uk

1 Background

The Welsh Government is consulting on its approach to solving transport related problems affecting the M4 corridor in South East Wales. People using the M4 Corridor and the surrounding highway network are aware of the congestion and potential hazards that result from the large number of vehicles using the M4. At peak times the volume of traffic is greater than the road was designed to accommodate. Travellers also notice the disruption caused by unexpected events and incidents. It can take considerable time following an incident before traffic flows normally again; this shows that the resilience of the M4 and surrounding highway network needs to be improved.

A Strategic Environmental Assessment (SEA) has been carried out on the M4 Corridor Enhancement Measures (M4 CEM) Programme to meet Government regulations¹ as the M4 CEM Programme has the potential to result in significant effects on the environment. The key aim of SEA is improve the environmental performance of a programme by assessing whether it is likely to result in any significant environmental effects (positive or negative) and making recommendations as to how adverse effects can be avoided, offset or reduced, as well as how environmental enhancements can be made.

This is the Non-Technical Summary of the Environmental Report providing a summary of the process undertaken and the principle findings of the SEA. The SEA has been carried out on behalf of the Welsh Government by Ove Arup & Partners Ltd.

The Environmental Report and its accompanying appendices document the findings of the assessment on the M4 CEM Programme. It gives stakeholders and the public an opportunity to comment on the findings and make any comments on the draft M4 CEM Programme. The results of the consultation on the Environmental Report will be documented in an 'SEA Statement', which will accompany M4 CEM Programme implementation plan in 2013.

2 The M4 CEM Programme

Detailed information about the M4 CEM Programme can be found at www.m4cem.com.

The M4 Magor to Castleton, Corridor Enhancement Measures Programme (M4 CEM) was set up to explore and resolve issues of capacity, safety and resilience along the M4 corridor in south-east Wales. A possible M4 CEM Strategy will comprise a range of the following measures:

- Public transport measures.
- Highway infrastructure measures:
 - Highway Option A: additional high quality road to the south of Newport.
 - Highway Option B: at grade junction improvements to the A48 Newport Southern Distributor Road (SDR).

¹ Environmental Assessment of Plans and Programmes (Wales) Regulations (2004).

- Highway Option C: grade separated junction improvements to the A48 SDR.
- Highway Option D: online widening on the M4 between Junctions 24 and 29, including an additional tunnel at Brynglas.
- Common measures: these are additional measures being considered to support the strategic public transport and highway capacity measures in addressing travel related problems within the M4 Corridor between Magor and Castleton. They comprise a mix of highway infrastructure, demand management, alternative modes and smarter sustainable choices.

3 The SEA Process

The SEA process is characterised by a series of stages that need to be undertaken and which should be integrated into the programme making process. The SEA Regulations for Wales require certain topics to be considered in an SEA, and in line with previous SEAs undertaken on the National Transport Plan and the Wales Transport Strategy the list of topics has been expanded to incorporate other environmental issues that are relevant to transport (see Table NTS1).

4 Environmental Issues and Objectives

The key issues and broad SEA objectives for each SEA topic are listed in Table NTS1. More detail on the key issues and SEA objectives can be found in the Environmental Report and the accompanying appendices.

Table NTS1 Key Environmental Issues and SEA Objectives

Environmental Topic	Key issues	M4 CEM SEA Objective
Air Quality	Newport has nine areas of poor air quality, four of which are associated with road traffic on the M4. The major contributor to the air pollution is road traffic. Poor air quality can potentially have negative health effects. .	Improve air quality in areas next to the M4 around Newport
Greenhouse Gas Emissions	In Newport, transport accounts for 20% of greenhouse gases emissions. These emissions are likely to increase due to increased numbers of vehicles and greater annual distance to travel. There is a need to reduce reliance on fossil fuels and encourage modal shift to more sustainable modes of travel.	Reduce transport related greenhouse gas emissions from the M4 corridor around Newport.
Climate Change Adaptation	Climate change will increase the likelihood and scale of deterioration or catastrophic failure of transport infrastructure due to extreme weather events. <ul style="list-style-type: none"> ● Transport infrastructure needs to take into consideration the potential effects from flood risk. 	Ensure that adequate adaptation measures to climate change are in place
Noise and vibration	Noise from roads, through their operation, construction and maintenance, remains an issue for communities. Noise can cause annoyance, interrupt conversation and disturb sleep.	Reduce disturbance to people from high noise levels, from all transport modes and traffic within the M4 Corridor

Biodiversity	<p>The Severn Estuary, River Usk and Gwent Levels are internationally important sites for a range of habitats and species. Key issues include:</p> <ul style="list-style-type: none"> • Land take for projects can lead to the loss and fragmentation of habitats. • Direct disturbance of transport-related activity on flora and fauna and loss of habitat function. • Impact of non-native invasive species arriving in imported soil. • The impact of highways on roadside casualties. • Indirect transport effects such as run off and accidental spillage from highway drainage systems. 	Ensure that biodiversity is valued, protected and enhanced
Population	<ul style="list-style-type: none"> • An increase in population might lead to higher demand for transportation of both passengers and freight; • The projected increase in the proportion of older people may place additional demand on public transport and/or accessibility initiatives; • Although access to private vehicles is comparatively high, a significant proportion of the population relies on the provision of alternative modes of travel. 	Provide inclusive access to all services and facilities and reduce severance
Human Health	<ul style="list-style-type: none"> • Living in an area with noise nuisance and high air pollution can potentially have negative health effects. • Reduced congestion could improve transport safety by reducing accidents. • The use of public transport has positive health benefits as most trips involve a walk or cycle to or from the public transport. • The risk to public safety and fear of attack can deter vulnerable groups from using public transport. 	Protect and promote everyone's physical and mental wellbeing and safety.
Soil and geology	<p>Soil is an extremely important biological habitat and gene reserve and is at risk due to erosion, contamination, degradation, compaction, sealing and loss.</p> <p>Wales nationally is affected by soil acidification and Newport is particularly vulnerable from industry and transport and their release of sulphur and nitrogen compounds into the atmosphere.</p>	Reduce transport related contamination and safeguard soil function, quality and quantity
Water	<p>The main pressures on water resources are from routine highway run-off, pollution due to accidental spillages, water acidification due to emissions to air, increased flood risk, changes to water tables and hydrological regimes, , and climate change.</p>	Minimise transport related effects on water quality, flood plains and areas of flood risk
Material Assets	<p>Highway infrastructure will inevitably consume natural resources and energy as well as generate waste during its construction, maintenance and operation. Long term energy requirements of the transport network consume energy through network services such as street lights, lit signs and traffic lights.</p>	Ensure the prudent and sustainable use of natural resources and energy.

Cultural Heritage	<p>Transport has the potential to affect historic sites directly and indirectly</p> <ul style="list-style-type: none"> • Direct effects: loss of or damage to cultural assets, archaeological sites and architecture due to new development or enhanced infrastructure; and • Indirect effects: drainage of adjacent sites, landscaping works, noise, vibration and air pollution can potentially lead to loss or damage, visual intrusion and effects on local distinctiveness. 	Ensure that diversity, local distinctiveness and cultural heritage are valued, protected, celebrated and enhanced
Landscape & Townscape	New transport infrastructure can potentially have negative effects on landscape and townscape character if it is not appropriately designed. Transport and transport infrastructure contribute to reduced tranquillity and increased light pollution.	Ensure that landscape and townscape is properly valued, conserved and enhanced

5 Alternatives

The SEA Regulations require consideration of alternative approaches. As the M4 CEM Programme has been developed to progress a specific package of measures identified in the National Transport Plan (NTP), the alternative approaches are limited. The M4 CEM Programme development has considered the most effective ways of achieving the goals and evaluated a wide range of individual measures to tackle the transport related issues around the M4 corridor.

6 Assessment of the Effects of the M4 CEM Programme

The identification of likely significant environmental effects is a key requirement of the SEA Regulations. A comparative summary of the likely significant environmental effects of implementing the measures in the M4 CEM Programme is provided below.

Table NTS2 below summarises the assessment of significant predicted direct, secondary and cumulative effects for the M4 CEM measures. The scale of significance used in the assessment is as follows:

2	Major Positive
1	Minor Positive
0	Neutral
-1	Minor Negative
-2	Major Negative
?	Unknown
N/A	Not Applicable

Table NTS2: Comparative Summary

SEA Indicator	Appraisal of CEM Measures					
	Public Transport Measures	Highway Infrastructure Option A	Highway Infrastructure Option B	Highway Infrastructure Option C	Highway Infrastructure Option D	Common Measures
Air Quality	1	?	?	?	?	1
Climatic Factors - Greenhouse Gas Reduction	0	?	?	?	?	0
Climatic Factors - Adaption Measures	0	2	1	1	1	0
Noise	0	?	?	?	-1	0
Biodiversity	-1	-2	-1	-1	-1	0
Population	1	1	-1	0	0	0
Human Health	1	1	0	0	?	1
Soil	0	-2	0	-1	-1	0
Water	-1	-2	-1	-1	0	0
Material Assets	-1	-2	-1	-1	-2	-1
Cultural Heritage	0	-2	-1	-1	-2	0
Landscape and Townscape	0	-2	-1	-2	-2	0

Cross-boundary Effects

A requirement of the SEA Regulations is to determine whether a programme is likely to result in significant environmental effects in areas outside the area covered by the programme. Taking forward the M4 CEM measures has the potential to have effects on transport conditions outside of Wales. For example, reduced congestion on the M4 around Newport could change traffic flows in England on the M5, M50 and A40. However, these effects are related to changed traffic flows outside Wales rather than to specific cross-boundary environmental effects. The changes are not anticipated to result in any new significant environmental effects outside Wales.

7 Mitigation and Recommendations

The SEA Regulations require that measures should be considered to prevent, reduce or offset any significant adverse effects that have been identified during the assessment process. Consideration should also be given to proactive avoidance of adverse effects and enhancement of beneficial effects.

The likely adverse environmental effects of the M4 CEM Programme could be mitigated at various scales. For example, some national/international issues such as reducing greenhouse gas emissions require policy interventions across Wales and the UK and cannot be addressed by the M4 CEM Programme alone. Conversely, some of the localised environmental effects may be avoided or reduced by taking action in the design and construction of individual transport projects.

It is likely that some of the mitigation measures may be delivered by parties other than the Welsh Government. The co-operation of other stakeholders is needed to ensure that the mitigation and enhancement measures are successfully implemented. Monitoring will play a role in determining whether mitigation measures have been implemented and how successful they have been at reducing adverse effects. A range of mitigation measures and recommendations are included within the Environmental Report.

8 Monitoring

Once an M4 CEM Strategy has been implemented, significant environmental effects will be monitored to identify unforeseen adverse effects at an early stage and in order to undertake appropriate remedial action. Where possible, the SEA will make use of existing monitoring arrangements to obtain the required information.

A monitoring framework will be finalised prior to the M4 CEM Programme being carried forward. This framework will ensure that a co-ordinated approach is taken to monitoring the effects of transport across the region. In addition, it is expected that individual projects will have separate monitoring strategies that will be developed at a project level.

9 Next Steps

The publication of the Environmental Report gives key stakeholders and the public an opportunity to comment on the predicted environmental effects of the M4 CEM Programme predicted by the SEA Environmental Report.

When a preferred M4 CEM Strategy is progressed it will be accompanied by an SEA Statement which will outline how the environmental assessment and consultation have influenced the significant effects. The M4 CEM Programme will continue to be developed prior to an implementation plan and the results of the consultation will be used to guide this process. The SEA will inform more detailed Environmental Impact Assessment(s), as required, for any major projects that may be taken forward through the M4 CEM Programme.

10 Making Your Views Known

The Environmental Report is available at the Welsh Government consultation website: <http://www.m4cem.com/> or www.wales.gov.uk/transport.

If you would like to comment on the Non-Technical Summary or the Environmental Report for the M4 CEM Programme, responses should be submitted in writing by 03/12/2012 to:

m4cem@arup.com or to:

Allan Pitt
Arup
4 Pierhead Street
Cardiff
CF10 4QP

Please note, the Welsh Government intends to publish a summary of the responses to this consultation document. Normally, the name and address (or part of the address) of its author are published along with the response, as this gives credibility to the consultation exercise. If you do not wish to be identified as the author of your response, please state this expressly in writing to us.