

Birmingham Box Phase 3
Managed Motorways

BB3MM

Consultation Paper



TERMINOLOGY

The term “Managed Motorways” refers to a ‘tool-box’ of measures to manage road capacity, traffic demand and incidents in order to increase the efficiency of road use and reliability of journey times, as well as potentially improving safety and reducing the environmental impact of motorway use.

Specific measures included in Managed Motorways potentially include:

- **Hard Shoulder Running:** using the Hard Shoulder as a running lane between junctions when traffic demand exceeds the capacity of the normal running lanes;
- **Controlled All Lane Running (CALR):** converting the Hard Shoulder permanently to a running lane with speed control across all lanes;
- **Emergency Refuge Areas:** providing special areas adjacent to the Hard Shoulder where drivers can stop in an emergency;
- **Variable Mandatory Speed Limits:** setting speed limits in response to congestion levels;

Summary of the Consultation

Topic of this consultation:	Phase 3 (M6 Junctions 5 to 8) of the Birmingham Box Managed Motorways Scheme (“the Managed Motorway Scheme”).
Scope of this consultation:	<p>We are keen to have your comments on the draft Regulations needed to provide Variable Mandatory Speed Limits, Hard Shoulder Running and other Managed Motorway measures on the M6 motorway between junctions 5 and 8; specifically on how the Regulations could affect your organisation or those you represent. A copy of the draft Regulations is enclosed with this consultation paper.</p> <p>The Managed Motorway Scheme will include the motorway and the on-slip and the off-slip roads between junctions 5 and 8 of the M6 motorway on both carriageways.</p>
Geographical scope:	The Managed Motorway Scheme will enable proactive management of the motorway network in the area north of Birmingham.
Impact Assessment:	The Impact Assessment can be found at Appendix A. When responding to the consultation, please comment on the analysis of costs and benefits, giving supporting evidence wherever possible.

General Information

To:	The consultation is aimed at any affected stakeholder groups and the general public.
Body/bodies responsible for the consultation:	The Highways Agency.
Duration:	The consultation will last for a period of 9 weeks commencing on 2 nd April 2012. The consultation will close on 4 th June 2012. Please ensure responses arrive no later than that date.

<p>Enquiries:</p>	<p>Rob Edwards Project Manager Highways Agency The Cube 199 Wharfside Street Birmingham B1 1RN Tel: +44 (0) 121 6788518 Fax: + 44 (0) 121 6788098</p>
<p>How to respond:</p>	<p>Please send your consultation response using the Consultation response form at Appendix B to:</p> <p>Highways Agency C/o: Paul Marsh Mouchel 2 Rye Hill Office Park, Allesley, Coventry, CV5 9AB</p> <p>Or alternatively you can respond to the consultation by email:</p> <p>bb3mm.pmo@mouchel.com</p> <p>When responding, please state whether you are responding as an individual or representing the views of an organisation. If responding on behalf of a larger organisation please make it clear who the organisation represents, and where applicable, how the views of members were gathered.</p>
<p>Additional ways to become involved:</p>	<p>The Highways Agency website will include a copy of this consultation pack which will be available to the general public. The website address is:</p> <p>http://www.highways.gov.uk/roads/projects/23385.aspx</p>
<p>After the consultation:</p>	<p>All responses received from consultees within the consultation period will be considered and responded to as necessary. Following the consultation a summary report will be made available on the Highways Agency website. The summary report will provide an analysis of responses received and the Highways Agency response.</p> <p>Subject to the results of the consultation; we envisage that the Managed Motorways Scheme will be operational in</p>

	early 2014.
Compliance with the Code of Practice on Consultation:	This consultation complies with the Government's Code of Practice on Consultation.

Background

Getting to this stage:	In October 2010, following the Spending Review, the Government announced its £1.4billion programme of 14 schemes to start work before 2015, including the M6 Junctions 5-8 Managed Motorway Scheme. The introduction of the Managed Motorway Scheme builds upon the positive results of a pilot scheme for Variable Mandatory Speed Limits and Hard Shoulder Running introduced on the M42 between junctions 3A to 7. The Managed Motorway Scheme aims to smooth traffic flows and provide more reliable journey times. The Government further announced in April 2011 that the Highways Agency will (subject to <u>the outcome of this consultation</u>) start work on the scheme in 2012.
Previous Consultation:	A consultation on the content of the draft Regulations for the Birmingham Box MM Phase 1 scheme (M6 J4-5) was held between 8 th January 2009 and 2 nd April 2009. A consultation was also undertaken from 8 th September 2009 to 21 st December 2009 on the Birmingham Box MM Phase 2 (M6 J8-10A) scheme. Following the consultations on Phase 1 and 2 it was recommended that the Secretary of State proceed with making the Regulations necessary to provide for Variable Mandatory Speed Limits, and where specified Hard Shoulder Running, that together form the Phase 1 and 2 scheme for Managed Motorways on the Birmingham Box.

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Appendix B - Consultation Response Form

Appendix C - List of Consultees

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Appendix E - The M6 Motorway (Junctions 5 to 8) (Actively Managed Hard Shoulder and Variable Speed Limits) draft Regulations 201X

Executive Summary

This consultation will provide an opportunity for interested parties and individuals to comment on the proposal to introduce Variable Mandatory Speed Limits and Hard Shoulder Running on the M6 motorway between junctions 5 to 8 (“the Managed Motorways Scheme”). Secondary legislation in the form of Regulations made under section 17 of the Road Traffic Regulation Act 1984 is required to implement the Managed Motorways Scheme.

The proposed Regulations will, within the area of the Managed Motorway Scheme, restrict drivers from driving at a speed exceeding that displayed on the variable speed limit signs or the national speed limit where no other speed limit sign is displayed. The proposed Regulations will also permit drivers to use the hard shoulder as an additional lane when indicated.

The Managed Motorway Scheme will enable proactive management of the motorway network around the Birmingham area. The speed limits displayed on the motorway will take account of prevailing traffic conditions with the aim of ensuring the smooth flow of traffic. The Variable Mandatory Speed Limits will be clearly displayed on gantry mounted Advanced Motorway Indicators above each lane of the main carriageway when open for use by traffic and on post mounted Advanced Motorway Indicators on the slip roads. The hard shoulder can be deployed as an additional lane to ensure the smooth flow of traffic when demand is high, during incident management and when roadworks are being undertaken.

This consultation exercise is concentrated on the draft proposed Regulations that are needed in order to implement the Managed Motorway Scheme by way of Variable Mandatory Speed Limits and Hard Shoulder Running. A copy of the Regulations is included at Appendix E. We would welcome comments specifically on how the draft Regulations could affect your organisation or those you represent. Similarly we would welcome your comments on the Impact Assessment which can be found at Appendix A. Consultees are invited to offer views on the treatment of costs and benefits in the accompanying Impact Assessment.

The Introduction of Variable Mandatory Speed Limits and Hard Shoulder Running

The Highways Agency is committed to building upon the success of the M42 junctions 3A to 7 where Hard Shoulder Running and Variable Mandatory Speed Limits have been in operation since September 2006. It is expected that the Managed Motorway Scheme in the area of the motorway network near Birmingham will:

- Smooth traffic flows;
- Provide more reliable journey times;
- Reduce the number and severity of accidents;

-
- Increase and improve the quality of information for the driver;
 - Maintain current safety levels for road workers;

The Managed Motorway Scheme also has the potential to reduce driver stress.

1. HOW ARE WE CONDUCTING THE CONSULTATION

1.1 WHAT IS THIS CONSULTATION ABOUT?

We are consulting on the proposal to operate Variable Mandatory Speed Limits and Hard Shoulder Running on the M6 between junctions 5 and 8 (“the Managed Motorway Scheme”).

1.2 WHY DO WE NEED THE MANAGED MOTORWAYS SCHEME?

From Junctions 5 to 8, the M6 is a heavily congested link in the motorway network that carries strategic transport flows, including between 13% and 21% heavy goods vehicles, through the major conurbation of Birmingham in the West Midlands linking the M1 and the North of England. The AM and PM peak journey times between J5 and J8 are 55% greater than during free flow conditions. The resulting congestion increases business costs and reduces mobility.

In October 2010, the Government announced it was providing £1.4 billion to fund new strategic road schemes. The M6 junction 5-8 Managed Motorway Scheme is one of 14 schemes announced as starting work before 2015. The Highways Agency is developing its role as Network Operator through a series of traffic management, network control and other measures with the aim of:

- Achieving best use of existing road space.
- Responding more quickly to incidents.
- Smoothing traffic flows and improving the reliability of journey times.

The use of Variable Mandatory Speed Limits and Hard Shoulder Running is an essential element in achieving these objectives. Through the introduction of technology the aim is to make best use of the existing road space whilst maintaining and where possible, improving current safety standards.

1.3 JOINING THE DEBATE

We would like to encourage any representative organisations, businesses or individuals affected by the proposed Managed Motorway Scheme to make contact with us and communicate their views.

If you are responding on behalf of an organisation, it would be helpful if you could note this in your reply. Please also indicate the nature of the organisation, how many individuals’ views are included in the response and ways in which these views were gathered.

A response form has been included in Appendix B and a list of the consultees is contained in Appendix C.

1.4 SENDING YOUR CONSULTATION RESPONSE

All responses should be sent in writing (email or by post) to the address below. Please let us have your comments by the 4th June 2012.

Highways Agency
C/o: Paul Marsh
Mouchel
2 Rye Hill Office Park
Allesley
Coventry
CV5 9AB

Email: bb3mm.pmo@mouchel.com
Telephone: +44 (0)7976 456433

1.5 HOW WE WILL ACT ON YOUR RESPONSES

Following the consultation period, we will publish a 'Response to Consultation Report'. This will be published on the Highways Agency website.

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence.

In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Highways Agency.

The Highways Agency will process your personal data in accordance with the DPA and in the majority of circumstances this will mean that your personal data will not be disclosed to third parties.

1.6 FURTHER INFORMATION

To receive further information on the Managed Motorway Scheme you can contact:

Rob Edwards
Project Manager
Highways Agency
The Cube
199 Wharfside Street
Birmingham | B1 1RN
Tel: +44 (0) 121 6788518 | Fax: + 44 (0) 121 6788098

Alternatively visit the Highways Agency website at:

<http://www.highways.gov.uk/roads/projects/23385.aspx>

1.7 GOVERNMENT'S CODE OF PRACTICE ON CONSULTATION

We are conducting this consultation in accordance with the Government's Code of Practice on Consultation. The consultation criteria are listed below.

- 1) **When to consult** - Formal consultation should take place at a stage when there is scope to influence the policy outcome.
- 2) **Duration of consultation exercises** - Consultations should normally last for at least 12 weeks with consideration given to longer timescales where feasible and sensible¹.
- 3) **Clarity of scope and impact** - Consultation documents should be clear about the consultation process, what is being proposed, the scope to influence and the expected costs and benefits of the proposals.
- 4) **Accessibility of consultation exercises** - Consultation exercises should be designed to be accessible to, and clearly targeted at, those people the exercise is intended to reach.
- 5) **The burden of consultation** - Keeping the burden of consultation to a minimum is essential if consultations are to be effective and if consultees' buy-in to the process is to be obtained.
- 6) **Responsiveness of consultation exercises** - Consultation responses should be analysed carefully and clear feedback should be provided to participants following the consultation.
- 7) **Capacity to consult** - Officials running consultations should seek guidance in how to run an effective consultation exercise and share what they have learned from the experience.

¹ The BB3MM consultation will last for a period of 9 weeks. There has been previous consultation on operational Managed Motorways schemes in the region through Birmingham Box Managed Motorways Phases 1 and 2.

If you have reason to believe this consultation document does not comply with this Code of Practice, please write to our consultation co-ordinator at the address below, setting out the areas where you believe this Paper does not meet the criteria:

Ian Sweeting
Highways Agency,
The Cube,
199 Wharfside Street,
Birmingham, B1 1RN

Or alternatively ian.sweeting@highways.gsi.gov.uk

Further information about the Code of Practice can be located on the Department for Business Innovation and Skills website:

<http://www.bis.gov.uk/Consultations>

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2. GENERAL INFORMATION ON THE BIRMINGHAM BOX MANAGED MOTORWAYS SCHEME

2.1 PROPOSED EXTENT OF THE MANAGED MOTORWAYS SCHEME

A map showing the Managed Motorway Scheme is shown in Figure 2A, including the proposed coverage of the scheme. The precise configuration of the extent of the roads that are included within the scheme may be subject to variation. The Managed Motorway Scheme will include the motorway and the on-slip and the off-slip roads between junctions 5 and 8 of the M6.

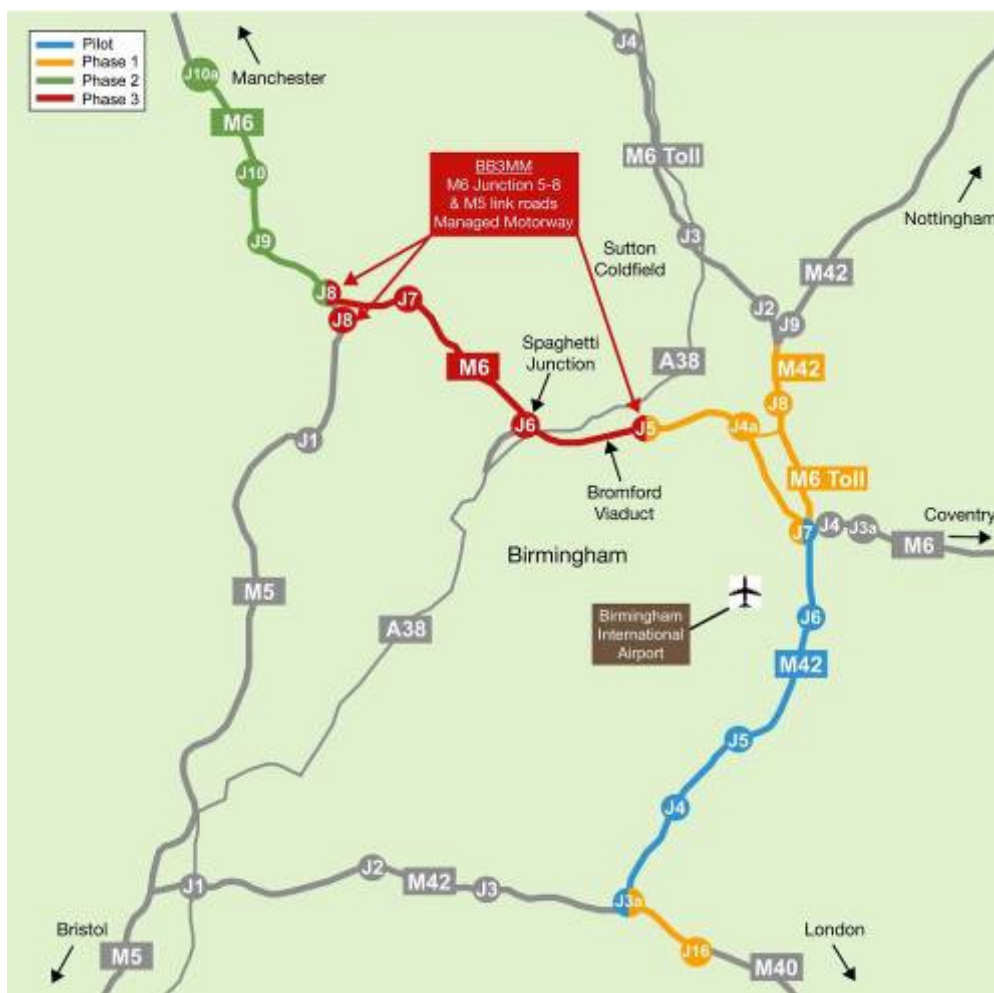


Figure 2A: Birmingham Box Managed Motorways Scheme Map

2.3 KEY FEATURES

The Managed Motorway Scheme will include the following key features:

- Gantries at regular spacing with lane specific Advanced Motorway Indicator signals to allow the speed limit to be varied in response to traffic conditions. This also enables the flexible use of the carriageways by displaying a red X and lane divert signals in order to close appropriate lanes for incident management;
- Variable Message Signs to provide the latest travel information and advanced warning of incidents;
- Digital speed enforcement equipment to facilitate enforcement and manage compliance;
- A national strategic agreement with the Police and all other emergency services;
- A system where in-road vehicle detector loops will detect queuing traffic, predict flow breakdown and set warning signals to smooth traffic flows. In addition CCTV cameras will be used to monitor traffic conditions;
- Use of the hard shoulder as an additional lane both for incident management and for use by traffic during periods of heavy congestion; and
- Emergency Refuge Areas, equipped with roadside telephones, and monitored by CCTV cameras. Emergency Refuge Areas will be set out at regular intervals and will be an area of refuge for vehicles providing an increased level of protection to the driver and passengers in the event of a breakdown or emergency.

2.4 ENFORCEMENT

Obtaining an acceptable level of compliance with the speed limits displayed on overhead gantries and on post mounted Advanced Motorway Indicators on the slip roads is key to the successful and safe operation of the Managed Motorway Scheme. No new offences or sanctions will be introduced as a result of the proposed changes to legislation. Enforcement of Variable Mandatory Speed Limits is planned to be carried out using a combination of gantry-mounted speed enforcement equipment and traditional enforcement by the Police.

3. VARIABLE MANDATORY SPEED LIMITS WITH HARD SHOULDER RUNNING

3.1 INTRODUCTION

In order to inform motorists that they are entering the Managed Motorways Scheme area, fixed signage on main carriageways and slip roads will indicate entry and exit locations.

During normal motorway operation, the Advance Motorway Indicators will be blank and the motorway will operate as a standard motorway with the hard shoulder available for emergency use only.

When the Variable Mandatory Speed Limits are in operation, speed limit signs will be displayed on Advanced Motorway Indicators. The speed limit displayed will take account of prevailing traffic conditions.

To signify that the speed limit is mandatory and enforceable, the speed shown will have a red circle around it, as is the case with all other mandatory speed limit signs.

During the period when the hard shoulder is open for use as an additional lane, a speed limit sign will be displayed on the Advanced Motorway Indicator over the hard shoulder. When a hard shoulder is not available for use as an additional lane but Variable Mandatory Speed Limits are in operation a Red X signal will be displayed over the hard shoulder to clearly indicate that it is not available for use by traffic.

Some gantries will be fitted with digital speed enforcement equipment capable of providing evidence to secure prosecutions for speeding under the Road Traffic Act 1988.

The operational regimes to be implemented within the Hard Shoulder Running scheme include:

- **Normal Operation;**
- **Variable Mandatory Speed Limits;**
- **Variable Mandatory Speed Limits and Hard Shoulder Running**
- **Incident Management;** and
- **Controlled All Lane Running (CALR)**

3.2 NORMAL OPERATION

During normal motorway operation the Advanced Motorway Indicators will remain blank and the motorway will operate as a standard motorway, as shown in Figure 3A below. This follows the same operating approach as the existing Managed Motorway scheme on the M42 motorway between junctions 3A and 7. The hard shoulder will be available for emergency use only and will provide access to the Emergency Refuge Areas, if required.

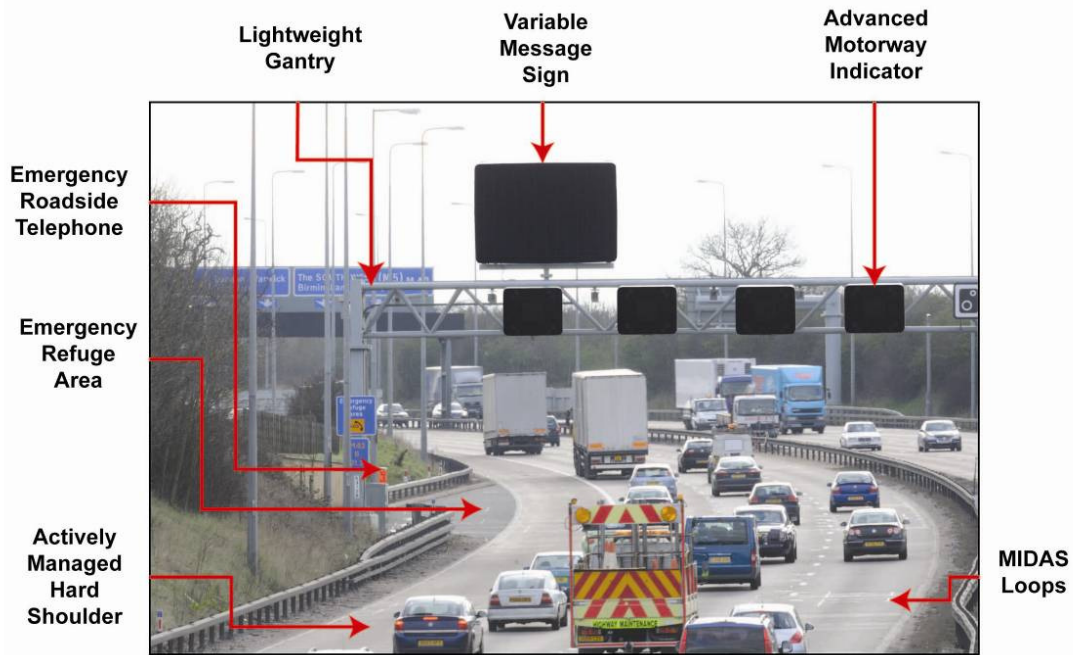


Figure 3A: Hard Shoulder Running section operating in normal motorway conditions

3.3 THREE LANE VARIABLE MANDATORY SPEED LIMITS

When variable mandatory speed limits are operational, clear instructions will be given to drivers via speed limit signs displayed on post mounted Advanced Motorway Indicator signals on the entry slip roads and via speed limit signs displayed on the Advanced Motorway Indicator signals above the main carriageway, as illustrated in Figure 3B below. The speed limit displayed will take account of prevailing traffic conditions and will be automatically calculated from sensors buried in the road surface or alternatively set by the West Midlands Regional Control Centre. Variable Message Signs will provide further information for drivers.

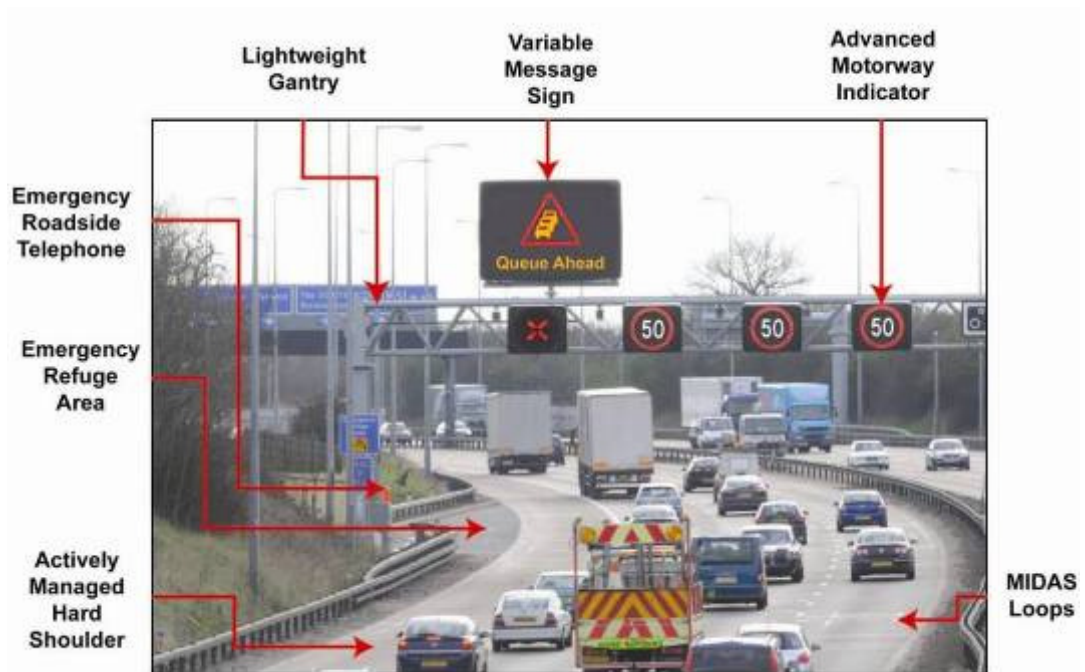


Figure 3B: Three lane Variable Mandatory Speed Limits (with queuing traffic ahead)

A Red X signal will be displayed over the hard shoulder, indicating that the hard shoulder is not available for use by traffic as an additional lane. However, as under normal operation the hard shoulder can still be used in the event of an emergency or breakdown and can also be used to access the Emergency Refuge Areas.

3.4 VARIABLE MANDATORY SPEED LIMITS AND HARD SHOULDER RUNNING

Upon activation of Hard Shoulder Running, clear instructions will be given to drivers via the Variable Message Signs that the hard shoulder is open for use by traffic as an additional lane. When the hard shoulder is open for use by traffic a speed limit sign will be displayed on the Advance Motorway Indicator signal as illustrated below in Figure 3C.

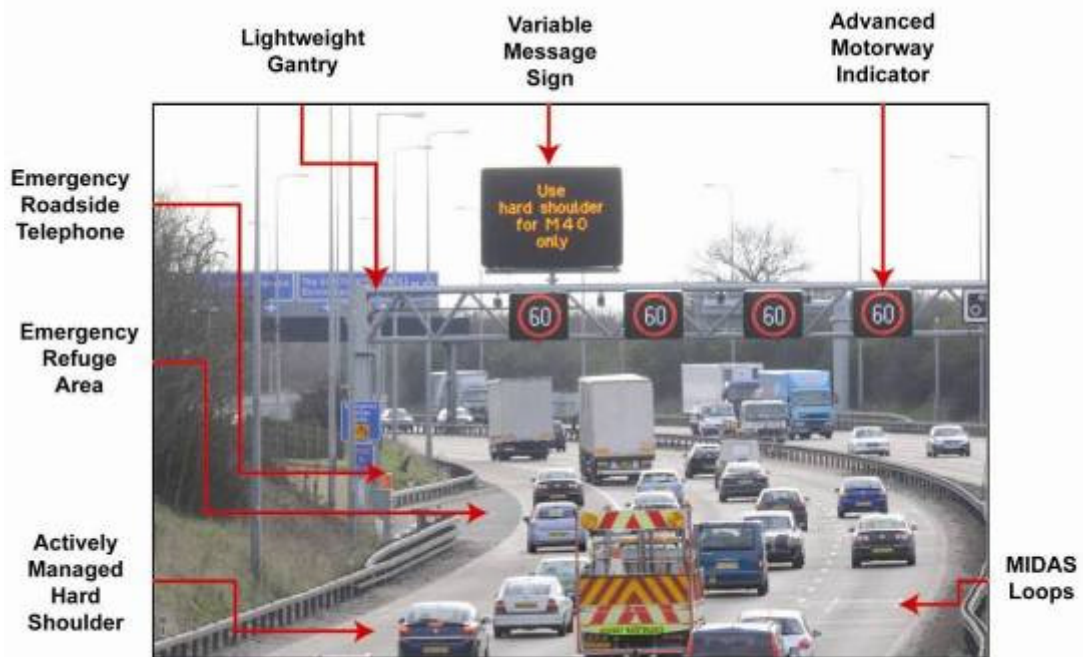


Figure 3C: Hard Shoulder Running in operation

The hard shoulder will be opened to traffic by the West Midlands Regional Control Centre and is never opened automatically. An operator must decide that the additional capacity is needed and then go through a series of safety checks. The decision on whether to open the hard shoulder depends on a number of factors including traffic flow. As traffic flows rise (for example during the morning or evening peak) monitoring systems alert the control centre staff.

Vehicles experiencing an emergency or breakdown will be able to stop in the Emergency Refuge Areas provided at regular intervals and which will be equipped with roadside telephones. There will be comprehensive CCTV coverage of the hard shoulder and Emergency Refuge Areas.

When closing the hard shoulder to revert back to normal operations or three lane Variable Mandatory Speed Limit operations a Red X signal will be displayed over the hard shoulder clearly indicating to motorists that the hard shoulder is no longer available as an additional lane and is for emergency use only.

3.5 INCIDENT MANAGEMENT

During incident management, the Advanced Motorway Indicators can be set in order to protect the scene of an incident and assist the access of Emergency Services and other core responders if required. Speed limits and lane availability will be indicated through the use of Variable Mandatory Speed Limits, lane divert arrow signals with flashing amber lanterns and Red X signals with flashing red lanterns, as shown below in Figure 3D, which can be displayed over any lane, including the Hard Shoulder.

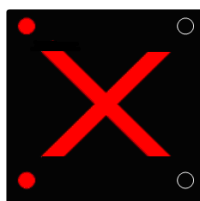


Figure 3D: Red X (STOP) aspect with flashing red lanterns shown over any lane

In the Hard Shoulder Running sections of the Managed Motorway Scheme the hard shoulder could be used as an additional lane to manage the flow of traffic around an incident that may have occurred in an outside lane.

3.6 CONTROLLED ALL LANE RUNNING (CALR)

CALR will be implemented on the M6 between junctions 7 and 8. CALR has the following features:

- Variable Mandatory Speed Limits;
- The speed limit displayed will take account of prevailing traffic conditions and will be automatically calculated from sensors buried in the road surface or alternatively set by the West Midlands Regional Control Centre.
- No hard shoulder – There is no hard shoulder as the hard shoulder will be converted to a permanent running lane;
- All lanes are operational and remain open except during incident management.

During peak periods (when lower speed limits are applied) the operation of CALR and Hard Shoulder Running is similar. In terms of the driver experience, the driver would see speed limit signs displayed on the Advanced Motorway Indicators above each lane under both CALR and Hard Shoulder Running. The difference between these two modes of operation is that for Hard Shoulder Running Variable Message Signs indicate that the hard shoulder is available as an additional lane however, no message is displayed on the Variable Message Signs regarding the availability of the lane for CALR as the lane is always operational.

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4. LEGISLATIVE CHANGES

4.1 LEGISLATIVE CHANGES FOR THE IMPLEMENTATION OF THE MANAGED MOTORWAYS SCHEME

Regulations need to be made under section 17(2) and (3) of the Road Traffic Regulation Act 1984 ('the 1984 Act') for the implementation of the Managed Motorway Scheme. The proposed regulations will restrict drivers from driving within the area of the Managed Motorway Scheme at a speed exceeding that displayed on the speed limit signs or the national speed limit where no other speed limit sign is displayed.

The relevant legislative power in the 1984 Act permits the making of regulations that regulate the manner in which and the conditions subject to which motorways may be used by traffic authorised to use such motorways.

The proposed regulations will also permit drivers to use the hard shoulder as an additional lane when so indicated by signals placed above the carriageway. For drivers to be permitted to use the hard shoulder as an additional lane the proposed regulations will modify the Motorways Traffic (England and Wales) Regulations 1982 (S.I. 1982/1163) in relation to the Managed Motorway Scheme.

Within the Managed Motorway Scheme, it will be an offence to use a motorway in contravention of regulations applying to the scheme made under section 17(2) of the 1984 Act.

Drivers of vehicles that pass a speed limit sign indicating that a speed limit other than the national speed limit applies, should obey that sign until the vehicle passes another sign indicating either that a new speed limit or the national speed limit applies.

Where a speed limit changes less than 10 seconds before a vehicle passes the sign, the Regulations allow a driver to proceed at a speed up to the maximum applicable before the change, and to continue to do so until the driver leaves the specified road, the national speed limit applies or until the next speed limit sign. The intention behind this '10 second' rule is to protect the driver from being prosecuted if, on the approach to a speed limit sign; it changes to a lower speed. For example should a driver approach a speed limit sign and it changes from 60mph to 50mph and he/she is within 10 seconds of passing that sign then the driver can legally continue beyond that sign at 60mph until a subsequent speed limit applies or until he/she leaves the specified road. If there was no 10 second rule, the issue of safety arises, as the driver would be required to brake sharply in order to comply with the new lower speed limit.

Subject to the outcome of the consultation, the proposed regulations when made will apply in relation to the M6 between junctions 5 and 8 and to the on-

slip and off-slip roads between junctions 5 and 8. The roads governed by the regulations will be set out in the regulations.

The proposed draft Regulations will not apply nationally – they will apply only to those parts of the motorway as specified in the Regulations (namely, junctions 5 to 8 of the M6 motorway). As drafted, these draft Regulations would put in place the legislative framework required to operate Phase 3 of the Birmingham Box Managed Motorway scheme.

A copy of the draft regulations is included at Appendix E. The roads governed by the regulations will be set out in the regulations.

5. APPENDICES

APPENDIX A – IMPACT ASSESSMENT (IA)

Title: Birmingham Box Managed Motorways - Phase 3 (BBMM3) IA No: DfT00111 Lead department or agency: Highways Agency Other departments or agencies: None	Impact Assessment (IA)		
	Date: 15/02/2012		
	Stage: Consultation		
	Source of intervention: Domestic		
	Type of measure: Secondary legislation		
Contact for enquiries: Robert Edwards, Highways Agency robert.edwards@highways.gsi.gov.uk			
Summary: Intervention and Options			RPC Opinion: RPC Opinion Status

Cost of Preferred (or more likely) Option			
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Measure qualifies as One-Out?
£435.2m	£433.5m	£-18.9m	Yes
			Zero Net Cost

What is the problem under consideration? Why is government intervention necessary?

The Birmingham Box comprises sections of the M42, M6 and M5. From J5 to J8, the M6 experiences considerable congestion during peak periods due to a high traffic volume. The congestion reduces the efficiency of movement of people and goods to the detriment of business productivity and the economic and social activities of individuals. If these problems are to be alleviated, then some form of intervention is required. The intervention needs to be undertaken by government since the motorway is owned, operated and maintained by government through the Highways Agency (HA) and Department for Transport (DfT). The intervention forms part of the DfT's programme of improvements to the trunk road network.

What are the policy objectives and the intended effects?

The objective is to reduce the cost of congestion to business and individuals and thereby encourage economic activity and improve social well being. The intended effects are to reduce journey times and the variability in journey times caused by congestion. In particular, the intention is to reduce congestion on the motorway at all times of day, thereby reducing journey times and making them more predictable or "reliable". There are a number of secondary social and environmental effects which have been quantified and taken into consideration as part of the DfT appraisal process. These are described in the evidence base.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 1: The preferred intervention is a system called Managed Motorway. Managed Motorway involves allowing use of the hard shoulder as a running lane in congested conditions. The hard shoulder is opened when speeds reduce to approximately 60mph. At this point, a mandatory 60mph speed limit is imposed. This speed limit is subsequently reduced to 50 or 40mph if traffic levels continue to increase. A Variable Mandatory Speed Limit (VMSL) is therefore required as part of the Managed Motorway system. Secondary legislation is required in order to implement hard shoulder running (HSR) and VMSL.

Option 2: The non-preferred intervention involves widening of the carriageway to four lanes and retention of a permanent hard shoulder. Although this option has additional benefits compared to the preferred option, these are more than cancelled out by the substantial additional costs. Regulation is not however required.

Will the policy be reviewed? It will be reviewed. If applicable, set review date: 01/2015					
Does implementation go beyond minimum EU requirements?				N/A	
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.		Micro Yes	< 20 Yes	Small Yes	Medium Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)				Traded: 0	Non-traded: -0.03

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: _____ Date: _____

Summary: Analysis & Evidence

Policy Option 1

Description: Birmingham Box Managed Motorways - Phase 3 (BBMM3)

FULL ECONOMIC ASSESSMENT

Price Base Year 2010	PV Base Year 2011	Time Period Years 60	Net Benefit (Present Value (PV)) (£m)		
			Low: £219.3m	High: £586.2m	Best Estimate: £435.2m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	n/a	n/a	n/a
High	n/a	n/a	n/a
Best Estimate	£183.0m	£4.7m	£284.4m

Description and scale of key monetised costs by 'main affected groups'

Breakdown of Best Estimate "Total Cost" in 2010 market prices, discounted to 2011 Present Value Year.
 Govt. (Public Accounts): Installation, Operation, Maintenance and Renewal: £167.4m
 Road Users (Economy): Reduction in Transport Economic Efficiency During Const. and Maint.: £55.3m
 Public (Environment): Increase in road traffic Noise: £18.8m
 Govt. (Public Accounts): Loss of Indirect Tax Revenue: £42.9m

Other key non-monetised costs by 'main affected groups'

Wildlife (Environment): Slight Adverse impact on Biodiversity.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	£0m	£21.2m	£503.7m
High	£0m	£36.6m	£870.6m
Best Estimate	£0m	£30.3m	£719.6m

Description and scale of key monetised benefits by 'main affected groups'

Breakdown of Best Estimate "Total Benefit" in 2010 market prices, discounted to 2011 Present Value Year.
 Road Users (Economy): Improvement in Transport Economic Efficiency: £605.4m
 Road Users (Economy): Improvement in Journey Time Reliability: £44.4m
 Road Users (Society): Reduction in Accidents: £65.6m
 Public (Environment): Reduction in Greenhouse Gas Emissions: £4.2m

Other key non-monetised benefits by 'main affected groups'

None.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5/3

The majority of the benefits are based upon the outputs of a traffic model : in particular, the differences between model outputs for the without and with scheme scenarios in the opening year and future years. The estimated benefits are therefore dependent upon the accuracy of the models and future traffic forecasts. To minimise the risk of error in this regard, the traffic models and forecasts have been prepared following DfT guidance. The traffic model meets DfT performance requirements.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: £0m	Benefits: £18.9m	Net: -£18.9m	Yes	Zero net cost

Evidence Base

1. Problem under Consideration

The Birmingham Motorway Box comprises sections of the M42, M6 and M5 and provides a “ring road” to the West Midlands conurbation. Substantial sections of the motorway box suffer from traffic congestion and to address this, in 2009 the Government announced that hard shoulder running would be extended to some of the busiest parts of the Highways Agency’s major road network and this initiated the Managed Motorways Programme. The Managed Motorway concept builds upon the success of the Active Traffic Management Pilot (which addressed the congestion on the key section of the M42) and the Agency has implemented Managed Motorway schemes on a further two sections of the M6 to either side of Junctions 5-8. Congestion on this section occurs throughout the day, but is greatest during the morning and evening peak periods when journey times between J5 and J8 are 65% greater northbound and 55% greater southbound than during free flow conditions. Two-way daily traffic flows average around 130,000 vehicles per day. This is almost 50% higher than the Congestion Reference Flow (CRF) of around 90,000 vehicles per day. The CRF represents the daily flow level at which a road is likely to be congested during peak hours.

2. Rationale for Intervention

The current congestion reduces the efficiency of movement of people and goods to the detriment of business productivity and the economic and social activities of individuals. If these problems are to be alleviated, then some form of intervention is required. The intervention needs to be undertaken by government since the motorway is owned, operated and maintained by the government through the Highways Agency (HA) and Department for Transport (DfT). The intervention forms part of the DfT’s programme of major improvements to the trunk road network for the 2010-15 Spending Review period. The programme is delivered by the HA.

3. Policy Objective

The Department for Transport’s Business Plan 2011-15 set out a vision for a transport system that is an engine for economic growth and one that is also greener and safer and improves quality of life in our communities. By improving the links that help to move goods and people around, the Department can help to build the balanced, dynamic and low-carbon economy that is essential for future prosperity.

The primary objective of the DfT’s programme of trunk road improvements is to reduce the cost of congestion to business and individuals and thereby encourage economic activity and improve social well being. The Department seeks to achieve this by reducing congestion through increasing network capacity and improving journey time reliability. On the M6 between Junctions 5-8 in particular, the intention is to reduce congestion on the motorway at all times of day, thereby reducing journey times and making them more predictable or “reliable”.

Although the objective for the scheme is to reduce congestion and improve reliability, there are a number of secondary social and environmental effects which have been quantified and taken into consideration as part of the DfT appraisal process. These are described in the following paragraphs.

4. Description of Options

4.1 Do Nothing Baseline ie Existing Situation

The Do-Nothing Baseline, or existing situation, is a dual three lane carriageway to motorway standard (D3M) with the MIDAS system (Motorway Incident Detection and Automatic Settings). MIDAS is a system comprising inductive loops buried in the carriageway surface which detect the presence of stationary or slow moving traffic. This information is transmitted to computers which will then provide written warnings and advisory speed limits upstream of the congestion event. The warnings and advisory speed limits are provided via variable message signs which are mounted on cantilevered mast arms above the carriageway. The purpose of the system is to minimise the risk of collisions between fast moving upstream traffic and the slow moving or stationary traffic detected by the loops.

4.2 Option 1 (Preferred): Managed Motorway

The existing MIDAS system described above is the simplest application of motorway control technology. It is solely a safety feature designed to protect queues by providing a warning of their presence to upstream traffic. The next level of control is a system called Controlled Motorway (CM). This system includes MIDAS to protect against queues, but also uses Variable Mandatory Speed Limits (VMSL) to assist in preventing the development of queues. Controlled Motorway is sometimes implemented on existing carriageways as a standalone measure to improve journey time reliability. Alternatively, if the level of congestion is high enough to warrant it, CM can be introduced in conjunction with measures to increase the capacity of the carriageway. In the case of BB3MM, traffic flow levels are such that there is substantial traffic congestion and an increase in traffic capacity is required.

The two alternative means of increasing traffic capacity are widening of the carriageway, or introduction of the next and highest level of motorway control technology known as the Managed Motorway (MM) system. Both alternatives include MIDAS and CM technology, the essential difference being that MM relies on temporary use of the hard shoulder rather than physical enlargement to provide additional traffic capacity at busy times.

The operation of the MIDAS component of MM is described above in paragraph 4.1. Like MIDAS, the Controlled Motorway (CM) component uses the same carriageway loops to detect vehicles and also sets speed limits on variable message signs. The difference is that CM also sets speed limits at higher speeds when information on traffic density from the loops indicates that 'bunching' may be occurring. It does not therefore wait until a queue develops. Instead, CM sets variable mandatory speed limits of 60mph and 50mph to reduce bunching and thereby reduce the likelihood of a queue occurring. However, if traffic still becomes slow moving or stationary then, like MIDAS, it will set a 40mph limit. The only difference in these circumstances is that the 40mph limit is a mandatory limit rather than the advisory limit used by MIDAS.

In more detail, the CM system uses VMSL to slow down upstream traffic. This reduces the likelihood of it 'catching up' with a pocket of slower moving traffic and causing traffic density to reach a level at which flow breakdown occurs. Whilst the reduction in speed limit increases journey times upstream of the high density region, these are cancelled out by journey time savings arising from a reduced incidence of flow breakdown and associated queuing. The net effect on average journey times is neutral but the range or variation in journey times is reduced, thereby improving reliability. This is measured in the assessment process by predicting changes in the standard deviation of journey times of trips using the Controlled Motorway as part of their route.

Managed Motorway (MM) takes CM a stage further by reducing congestion and journey times, as well as improving journey time reliability. Given the daily congestion which occurs during both peak and inter-peak periods, the policy objectives include increasing capacity to reduce congestion. Therefore, MM is an appropriate option to address the objectives.

In essence, the MM system operates in the same way as the CM system, but with a facility for control room operators to open the hard shoulder as a running lane. Hard Shoulder Running (HSR) provides additional traffic capacity and this reduces the density of traffic (the number of vehicles per unit length of road). This reduced density allows traffic to travel at higher speeds whilst still maintaining a safe headway distance between themselves and the vehicle in front. The higher speeds mean reduced journey times.

When operating MM, the aim is to open the hard shoulder when traffic volume on the three normal lanes reduces average speeds to around 60mph. It should then be closed (and the 60 limit removed) when the volume has reduced to the extent that speeds on the normal three lanes would be in excess of 60.

A secondary benefit of MM is a reduction in accidents and the associated queues, thereby reducing queuing delays and further improving reliability. The reduction in accidents which has been observed in conjunction with MM is believed to be the result of imposing lower mandatory speed limits and requiring drivers to stay in lane.

In order for MM to be successful, it is essential that the variable speed limits which form part of the system are complied with. This requires the speed limits to be mandatory. Secondary legislation is required to allow mandatory variable speed limits to operate. Secondary legislation is also required for the introduction of hard shoulder running.

It should be noted that the mandatory speed limit signs used as part of a controlled motorway are matrix signs which can display either 40, 50, 60 or the national speed limit sign. Being a mandatory sign, they are required to have a red outer ring in order to comply with the traffic signs regulations. They are also required to be displayed over each lane. Advisory signs used for MIDAS are also matrix signs, but do not have the red ring, nor is it a requirement to display them over every lane (though HA standards require this for carriageways of four or more lanes, making gantries a necessity).

Enforcement of VMSL is carried out using a combination of gantry-mounted speed enforcement cameras in conjunction with the Highways Agency Digital Enforcement Camera System (HADECS) to automatically monitor compliance and traditional enforcement by the Police. However, only a proportion of the gantries carry "live" enforcement cameras with the remainder having mock camera enclosures installed. These are known as Perceived Enforcement Gantries (PEGs).

This scheme lies between two sections of the M6, (junctions 4 to 5 and junctions 8 to 10A) which already operate as managed motorways and have gantries with live enforcement sites. Consequently, this scheme should be regarded as part of a contiguous length of managed motorway running from junction 4 to 10a. An operational and safety review has therefore concluded that additional enforcement cameras are not needed between junctions 5 and 8 in order to achieve an acceptable level of speed compliance though the scheme will have five PEGs.

4.3 Option 2: Widening to Dual 4 Lane Motorway (D4M)

This option involves widening the carriageway to four lanes in each direction and retaining the hard shoulder for emergency use only. In effect, the existing hard shoulder becomes a permanent running lane and a new hard shoulder is built next to the existing hard shoulder. In addition, CM is introduced and this operates together with MIDAS in the same way as described above for MM.

The advantage of a widened carriageway over MM is that the additional lane can operate at 70mph rather than 60mph. In particular, hard shoulder running cannot be brought into use until flow levels on the three normal lanes have reduced speeds to 60mph. However, on a widened carriageway the same flow levels could have an average speed of up to 70mph. This means that a widened carriageway will generate greater journey time benefits under normal operating conditions. Furthermore, a widened carriageway with an emergency only hard shoulder will not be blocked by incidents that are confined to the hard shoulder. A widened carriageway will therefore have greater incident related journey time variability and delay benefits for the same reduction in accident rate.

The costs of widening a motorway constructed at ground level are typically 2.5 times the costs of installing a Managed Motorway solution. In this *case, more than 50% of the length of the scheme is* elevated motorway which costs around 10 times more to widen than an "at grade" motorway. As a result, it was clear from an early stage in scheme development that the costs of this option would far outweigh any additional benefits and that Managed Motorway was clearly a better value for money solution. For this reason, detailed appraisal work was not undertaken of this option and there are no detailed estimates available of the costs and benefits.

In addition to being better value for money, the proposed MM scheme is also more affordable than widening: the cost of implementation being around 15% of the cost of widening the elevated motorway. Thus, with several motorway projects in the roads programme, the implementation of MM across a number of projects has allowed more motorway improvement projects to proceed in the current Spending Review period than would otherwise have been the case. This was also a key factor in the decision of the Secretary of State to pursue MM rather than widening.

5. Details of Costs and Benefits for Option 1 (Preferred)

5.1 Do Nothing Baseline ie Existing Situation

The “Do-Nothing” represents the baseline against which the proposed managed motorway is assessed.

5.2 Option 1 (Preferred): Managed Motorway

The impacts of the Managed Motorway, including costs and monetised benefits, have been appraised using the Department for Transport’s (DfT) WebTAG (Web-based Transport Analysis Guidance) which is based upon HM Treasury Green Book principles. WebTAG identifies a wide range of possible impacts that transport schemes can have and prescribes detailed methodologies for quantifying these impacts and monetising them wherever possible. The range of impacts which must be considered come under the three main headings of Economy, Environment and Society which are then subdivided into sub-impacts such as journey times, reliability, noise, air quality, landscape, greenhouse gas emissions and accidents etc. Scheme promoters are required to assess all these impacts using the prescribed methodologies (links to the relevant sections of WebTAG are provided below) and to summarise the results of the analysis in an Appraisal Summary Table (AST). The AST forms a summary of the economic case for a scheme and is used by Highways Investment Board to inform all decisions relating to the selection of a preferred scheme option and the decision to ultimately invest in that option. The Managed Motorway scheme has been subject to these processes.

Because WebTAG relates to transport schemes generally, there is a second tier of more detailed appraisal guidance which relates specifically to trunk road schemes and which is contained within the DfT/HA’s Design Manual for Roads and Bridges (DMRB). In particular, Volumes 11 to 14 of the DMRB contain supplementary appraisal guidance on a number of issues including traffic model building, the assessment of accident impacts and environmental assessment.

It is important to appreciate that the cornerstone of the appraisal process for road schemes is a traffic model. The model is a computer based representation of the physical characteristics of the road network, the behaviour of different types of traffic using the network and the origins and destinations of that traffic. The model is built and calibrated to represent the road network (the “supply”) and the traffic “demand” upon it at the current time “the base year”. A set of independent traffic count and journey time data not used in the calibration process is then used to “validate” the base year predictions of the model.

Using the behavioural relationships between supply and demand contained within the model, it is possible to alter the network to represent a new road scheme, or change the traffic demand (to represent traffic growth), and identify how traffic flows and speeds change as a result. This provides the information necessary to identify changes in journey times, journey time reliability, vehicle operating costs, tax revenues and accidents across the network in any modelled future year. The information is also used to assess the environmental impact of a scheme in terms of greenhouse gas emissions, air quality and noise.

The proposed scheme uses the Policy Responsive Integrated Strategic Model (PRISM) transport model which covers the district boundaries of the West Midlands local authorities. A decreasing level of spatial representation is provided for the remainder of the West Midlands region and, in turn, the rest of the UK. The model has been developed and fully validated using a series of traffic surveys, journey time surveys, road side and household interview surveys in addition to data already available from the Highways Agency and local authorities.

Naturally there is some uncertainty in relation to forecasts of future traffic levels when modelling future years. These forecasts are made at a national level through the DfT’s National Transport Model and are based upon certain assumptions regarding household growth, income growth, changes in fuel price and how these affect the level of car ownership and usage. Changing these core assumptions can affect the level of future year benefits and it is a requirement of WebTAG that different scenarios of future traffic growth are modelled, in addition to the most likely or “Core Scenario”. These scenarios are termed the Highest and Lowest Benefits Scenarios and represent the highest and lowest levels of future traffic growth which might reasonably be expected to occur, though such outcomes are considered less likely than the Core Scenario. It is correct to infer from this that the greater the level of future traffic demand, the greater are the benefits of the proposed scheme (this applies to all road schemes). In addition, the future level of benefits is affected by future changes to the transport network or “supply”. In particular, future provision of roadspace elsewhere in the road network can affect the level of traffic demand on the

scheme section and thus the number of users who benefit from improved journey times. There is always some uncertainty regarding if and when transport improvements will occur, so the traffic model road networks for Highest and Lowest Benefits Scenarios are also different to those contained in the Core Scenario model. These scenarios therefore represent that combination of traffic demand and road supply which will produce the lowest and highest level of benefits that can reasonably be expected or, in other words, a full range of realistically possible outcomes.

It should be noted at this stage that WebTAG only regards expenditure such as construction, maintenance and operating costs as “costs”. Any adverse impacts of a scheme are instead considered as disbenefits and, where monetised, are dealt with on the benefits side of the equation for purposes of calculating the benefit cost ratio metric used by the DfT. The Highest and Lowest Benefits Scenarios therefore relate to both positive and negative benefits, but not the scheme investment and running costs. The positive and negative benefits associated with the Highest and Lowest Benefits Scenarios are included in the summary sheet for the preferred option 1. The negative benefits have been included under “costs” since it is understood that this is how they are to be regarded for purposes of the IA.

As regards the costs of implementing and operating the scheme, WebTAG does not require the production of Highest and Lowest Costs Scenarios as part of the economic assessment. A single “Best Estimate” is used which includes a Risk Allowance (based upon a Quantified Risk Assessment) and Optimism Bias. The estimate is refined (and the level of Optimism Bias reduced) as the scheme progresses towards implementation and design work allows more accurate quantification of the costs. At the end of each scheme stage, the net present value and benefit cost ratio of the scheme are recalculated on the basis of the latest scheme costs before a decision is made by the Highways Investment Board to proceed to the next stage.

WebTAG and the DMRB require that the costs and benefits of transport projects are valued at 2002 prices and discounted to 2002. However, for the purpose of the Impact Assessment these have been converted to 2010 Prices (representing a recent year for which HM Treasury GDP deflator factors are available) and discounted to a present value year of 2011.

In addition, to reflect the fact that Managed Motorways include the building of run off areas, for which the lifetime of the asset would stretch beyond 30 years, a 60 year assessment period has been adopted by DfT for HSR Managed Motorway projects.

Monetised Costs (Core Scenario forecast – “Best Estimate”)

All Managed Motorway schemes have the following types of costs. All costs are incurred by government.

- TRANSITION: Cost of Installation;
- RECURRING: Cost of Enforcement of VMSL.
- RECURRING: Cost of Maintenance and Operation;
- RECURRING: Cost of Renewing electronic equipment at 15 year intervals;

Individual Managed Motorway schemes are appraised in terms of a range of potential impacts as set out in WebTAG. These include economic, safety and environmental, eg landscape, noise, carbon and air quality impacts.

The proposed scheme has the following negative monetised impacts, or costs, which are described in more detail in the subsequent paragraphs. All values quoted relate to the Core Scenario forecast and are the Best Estimate:

- TRANSITION: Cost of disbenefits to Transport Economic Efficiency during installation;
- RECURRING: Cost of increased Noise;
- RECURRING: Cost of a reduction in Indirect Tax Revenue.

Transition: Installation Costs

The current capital cost of installing the Managed Motorway scheme is derived through a standardised cost estimation process designed and undertaken by the Highways Agency. The designer supplies details of the scheme to the Highways Agency Commercial Team who apply standard rates and return the cost estimate to the designers. This estimation process is refined as the scheme preparation process proceeds and the final cost estimate will not be available until the design is completed.

Table 1 provides a breakdown of the current scheme cost estimate, which is based on the scheme Delivery Partner's negotiated Target Price. Preparation costs cover the balance of expenditure on the scheme design and preparation of tender documentation. Supervision costs cover the cost of the HA's design agent supervising the contract on behalf of the HA. Works expenditure is the cost of materials and labour for constructing the scheme. Lands expenditure includes an allowance for leasing land required during construction for the erection of gantries. An allowance of £25.5m for risk is included, based on the scheme's risk management plan. However, as the cost reflects the fixed Target Price for delivery, no further allowance for optimism bias has been made.

Table 1: Installation Costs (2010 Constant Market Prices – Undiscounted – in £m)

Cost in 2010 market prices	2011/12	2012/13	2013/14	2014/15	Total
PREPARATION EXPENDITURE PROFILE	1.722	0.059	0	0	1.781
SUPERVISION EXPENDITURE PROFILE	0.234	3.593	2.779	0.118	6.723
WORKS EXPENDITURE OUTTURN PROFILE	3.122	47.921	37.074	1.565	89.683
LANDS EXPENDITURE OUTTURN	0	0.059	0	0	0.059
RISK	0.228	16.043	9.259	0	25.529
TOTAL OUTTURN EXPENDITURE FORECAST (ALL COSTS INCLUDED)	5.305	67.675	49.113	1.683	123.776

Recurring: Enforcement Costs

BB3MM is located in-between BBMM Phase 1 (M6 Junction 4 to 5) and BBMM Phase 2 (M6 Junction 8 to 10A) where there are a number of live enforcement sites. Following an operational and safety review it is considered that it is not necessary to introduce live automatic speed enforcement between M6 Junction 5 to 8. Motorists will perceive that speed enforcement is in place through the scheme and the other measures introduced as a result of the 'controlled environment' are expected to result in an acceptable level of speed compliance being achieved. Accordingly there are no additional enforcement costs associated with Phase 3.

Recurring: Maintenance and Operating Costs

Maintenance and operating costs have been derived using the Highways Agency Managed Motorways Operational Cost Model spreadsheet.

The average annual maintenance cost is **£1.2m** over 60 years (2010 Constant Market Prices – Undiscounted). This includes the costs associated with the maintenance of gantries, signs, loops and cabinets, together with the additional costs associated with the use of the hard shoulder, including additional winter gritting, lighting, markings, loops and CCTV systems, plus specialist IT hardware and software. It also includes the cost of such items as additional control room staff and the power consumption of the various items of electronic equipment.

Recurring: Renewal Costs

The average annual renewal cost of **£0.9m** over 60 years (2010 Constant Market Prices – Undiscounted), is based on replacing all electrical equipment at expiry of a 15 year operational life. Gantries will require replacement after 30 years.

Transition: Transport Economic Efficiency Costs during Installation and Maintenance

The cost of disbenefits to transport economic efficiency during installation and maintenance is **£59.2m** (2010 Constant Market Prices – Undiscounted). These costs are primarily the result of the traffic delays caused by the roadworks necessary to construct and maintain the scheme. In brief, WebTAG identifies a value of time for different types of vehicles and trip purposes and these values are multiplied by the number of additional hours of delay which are incurred during the roadworks (when a lower 50mph speed limit will be in operation). In this case, the delays during construction have been cancelled out to a large extent by delay savings during maintenance, ie delays with the scheme during maintenance are less than those without the scheme.

WebTAG values of time vary by vehicle type and trip purpose and increase over time in line with forecast growth in GDP. The value of time per vehicle depends upon vehicle type, trip purpose of the occupants, the number of occupants and the time of travel. The value of time also increases over time in line with GDP growth. The value of time for the average vehicle in 2011 at 2010 market prices is £14.80 per hour. Further details of the values and how they are calculated can be found at [Department for Transport - Transport Analysis Guidance - WebTAG - Documents - Guidance documents - expert](#)

Recurring: Noise Costs

There are approximately 27,500 residential properties within the study area of the scheme which receive changed traffic noise levels. Comparing the with scheme case with the without scheme case, in the scheme opening year, noise levels rise for about 23,000 properties adjacent to the motorway because using the hard shoulder simultaneously increases the volume of traffic that can use the motorway and brings traffic closer. No property receives an increase in noise greater than 2.9 decibels and for the majority of properties, the increase in noise is less than 1 decibel [dB(A)]. About 4000 properties on local roads receive reduced traffic levels because traffic is attracted from these roads to the motorway due to its increased capacity. Based on the [Department for Transport - Transport Analysis Guidance - WebTAG - Documents - Guidance documents - expert](#), the annual average cost of changed noise levels on property values is **£0.8m** over 60 years (2010 Constant Market Prices).

Within the appraisal, changes in noise levels are ascribed a monetary value that varies in line with how loud the noise level is. At the quieter 45 dB(A) level, an increase of 1 decibel is valued at £10.34 per household. This increases until at a level of 80 dB(A), a one decibel increase is valued at £120.58 per household. These are both in 2010 market prices.

Recurring: Indirect Tax Revenue Costs

The average annual loss of indirect tax revenue of **£1.8m** over 60 years (2010 Constant Market Prices – Undiscounted) arises as a result of changes in the volume, speed and distance travelled on the road network by vehicles. In particular, the scheme provides additional traffic capacity which results in traffic redistributing across the network to reduce its journey time. This can mean some traffic will travel a shorter distance, or at a higher more fuel efficient speed eg on the managed motorway. The tax revenues concerned are VAT and fuel duty.

The reduction in tax revenues reflects the fact that the scheme results in an overall decrease in the cost of operating vehicles. This is taken account of as a benefit to road users and increases the Transport Economic Efficiency benefit (see below). Although a benefit to road users, the reduction in revenue is a cost to wider society since it can no longer be used by government for the benefit of society.

Non-Monetised Costs

There are slight adverse impacts on three Sites of Local Importance for Nature Conservation designated within the motorway corridor, as they will be subject to limited land take (all within the motorway boundary) required to construct the scheme. Although further assessment is required to determine any impacts on badgers, implementation of appropriate mitigation measures are expected to result in neutral impacts on this species. Impacts on all other sites and species such as great crested newts, reptiles, bats and breeding birds are predicted to be neutral as direct impacts through loss of suitable habitats are not expected. Slight adverse (the lowest level of a seven point qualitative scale) impacts, are anticipated on other Biodiversity Action Plan (BAP) species such as common toad, common frog and hedgehog due to potential habitat disturbance and loss within the highway boundary resulting from construction of the scheme.

An appraisal of the effects on Air Quality resulting from the scheme has been undertaken in accordance with current DfT TAG and DMRB guidance. This has shown that no additional properties exceed the annual mean PM10 (particulate matter smaller than 1 hundredth of a millimetre) EU Limit Value and no current exceedences are removed as a result of the proposed scheme. The scheme is predicted to lead to an improvement in air quality in terms of PM10 overall. The scheme intersects three Air Quality Management Areas (AQMAs) and a total of nine AQMAs are affected by changes to road traffic characteristics resulting from the scheme. A detailed assessment using dispersion modelling undertaken in accordance with DMRB guidance has concluded that the overall number of properties at which the annual mean nitrogen dioxide limit value is exceeded remains the same with or without the scheme.

Monetised Benefits (Core Scenario forecast – “Best Estimate”)

The proposed scheme has the following monetised benefits. There are no monetised benefits during Transition ie installation:

- **RECURRING:** Benefits to Transport Economic Efficiency through a reduction in journey times and vehicle operating costs. In addition, there is a net increase in the combined revenues received from road user charges and public transport fares (private sector providers);
- **RECURRING:** Benefits to Journey Time Reliability through a reduction in day to day journey time variability;
- **RECURRING:** Benefits to Road Safety through a reduction in accidents;
- **RECURRING:** Benefits to Climate Change through a reduction in greenhouse gas emissions.

Reducing accidents on the scheme section leads to the following additional benefits:

- **RECURRING:** A reduction in incident related journey time variability as a result of fewer accidents;
- **RECURRING:** A reduction in delay as a result of reducing the time spent queuing at an accident site;

Each of the benefits is described in more detail in the subsequent paragraphs. All values quoted relate to the Core Scenario forecast and are the Best Estimate. In line with the DfT's Transport Analysis Guidance, the issue of uncertainty over the forecasts has been addressed through assessments of alternative forecast scenarios. These have been devised to simulate higher and lower demand (in relation to the Core Scenario) for the scheme and hence the range in which the BCR would fall. The economic analysis of each of the alternative scenarios has been limited to an assessment of the Transport Economic Efficiency using the DfT sponsored computer program called Transport User Benefit Appraisal (TUBA). As such it is not possible to provide a range estimate for each of the components of the appraisal. Based on the TUBA results alone, the Lowest Benefit Scenario is estimated to be 30% below and the Highest Benefit Scenario 21% above the Core Scenario.

Recurring: Transport Economic Efficiency Benefit

The average annual transport economic efficiency benefit is **£25.5m** over 60 years (2010 Constant Market Prices – Undiscounted). This benefit comprises the following elements:

- Reduction in Journey Times: £25.4m
- Reduction in Vehicle Operating Costs: £0.1m

The reductions in journey time arise as a result of the additional traffic capacity provided by allowing use of the hard shoulder. In congested periods, the additional capacity reduces traffic density and increases speeds on the motorway. It also allows additional traffic to reassign to the motorway from other slower routes to reduce its journey time. This in turn reduces journey times on other routes in the network.

The change in vehicle operating costs is the sum of changes in both the fuel and non-fuel related costs of all vehicle trips in the network. These will increase if the scheme results in traffic reassigning to a longer (but quicker) route, or if vehicle speeds move in either direction away from the optimum speed for fuel efficiency for the type of vehicle concerned. The converse applies as well, so the overall change in vehicle operating costs is the sum of many increases and decreases over the area of the traffic model. In the case of the proposed scheme, the overall change is just £0.1m. It has therefore been combined with the journey time benefit in the above breakdown of the transport economic efficiency benefit.

The information required to calculate the benefits is extracted from the traffic model in the form of matrices of trip numbers, travel times and distances between every origin and destination. Matrices are

extracted for the with and without scheme scenarios and for different time periods, vehicle type and trip purpose in various future modelled years. The matrices are then fed into TUBA which calculates the total journey times, vehicle operating costs, user charges, carbon emissions, fares and tax revenues in each year of the DfT 60 year appraisal period. All the components are monetised within TUBA and the with scheme costs are subtracted from the without scheme costs to determine the benefit or disbenefit.

As explained in the costs section, WebTAG values of time and vehicle operating costs vary by vehicle type and trip purpose and increase over time in line with forecast growth in GDP.

Recurring: Journey Time Reliability Benefit

The average annual journey time reliability benefit is **£1.9m** over 60 years (2010 Constant Market Prices – Undiscounted). This benefit comprises the following elements:

- Reductions in Journey Time Variability: £1.2m
- Reductions in Incident Related Delay: £0.7m

The reductions in journey time variability arise as a result of making journey times on the scheme section more uniform (day to day variability) and reducing accidents (incident related variability). In particular, congestion, flow breakdown and accidents generate significant variability in journey times which makes them less predictable or “reliable”. The reductions in incident related delay arise from reducing the number of accidents on the scheme section.

The information required to calculate the benefits is extracted from the traffic model in the form of the numbers of trips per day using the scheme section, the length of these trips and which routes they use. The information is extracted for various future modelled years for both the with and without scheme scenarios. It is then entered into a DfT sponsored computer program called Incident Cost benefit Analysis (INCA) which calculates the change in standard deviation of the average journey time for each route at different times of the day. The calculations are undertaken for both the with and without scheme scenarios and repeated for each year of the DfT 60 year appraisal period. A monetary valuation is attached to the changes in standard deviation which are then multiplied by the number of vehicles on each route. A reduction in standard deviation (or “variability”) is a benefit and an increase is a disbenefit.

The WebTAG value for the standard deviation of journey time in minutes is equal to 80% of the WebTAG values of time. The value of time per vehicle depends upon vehicle type, trip purpose of the occupants, the number of occupants and the time of travel. The value of time also increases over time in line with GDP growth. The value of time for the average vehicle in 2011 at 2010 market prices is £14.80 per hour. More details can be found at [Department for Transport - Transport Analysis Guidance - WebTAG - Documents - Guidance documents - expert](#)

INCA is also used to calculate the reductions in incident related delay. INCA does this by using the traffic flow inputs and traffic capacity of the carriageways to calculate the total queuing delay generated by accidents in both the with and without scheme scenarios on the scheme section. The user supplies the with and without scheme accident rates. A reduction of 15% is used for Managed Motorway schemes as explained below in the section on road safety benefits.

Recurring: Road Safety Benefit

The average annual road safety benefit is **£2.8m** over 60 years (2010 Constant Market Prices – Undiscounted). The benefit arises as a result of a reduction in the accident rate (accidents per million vehicle kilometres) on the scheme section following deployment of the Managed Motorway system. There are also accident reductions on other routes as a result of traffic reassigning from these routes to the motorway due to the increase in traffic capacity provided by opening of the hard shoulder ie the reduced journey times attract traffic to the motorway (accident rates for motorways are lower than for other road types).

It is assumed that Managed Motorway schemes reduce the existing accident rate by 15%. This figure is recommended in the draft IAN “Appraisal of Technology Schemes”, which is in turn based upon the before and after evaluation of the existing Controlled Motorway scheme between J15 to 16 of the M25. The reduction is believed to be the result of a number of factors (a) imposing mandatory rather than just advisory speed limits in the event of incidents and congestion (b) a requirement for drivers to stay in lane when the speed limits are in operation (c) the presence of speed enforcement cameras which discourages speeding even when reduced speed limits are not in operation.

The information required to calculate the accident impact is extracted from the traffic model in the form of the physical characteristics of the road network in the model area and the daily traffic flows on links and junctions. The information is extracted for various future modelled years for both the with and without

scheme cases. In addition, the numbers of existing accidents at links and junctions within the network are obtained from police records. All the data is then entered into a DfT sponsored computer program called COSt Benefit Analysis (COBA) which calculates an accident rate for each link and junction and hence produces the number of accidents in the whole network for the with and without scheme cases in each year of the DfT's 60 year appraisal period. COBA attaches a monetary valuation to accidents and sums the total accident costs for each network. The difference in accident costs between the with and without scheme scenarios is the accident benefit of the scheme. In this case, COBA has predicted an overall saving in accidents of 1,066 across the road network over the 60 year appraisal period.

WebTAG values of accidents vary by road and junction type and increase over time in line with forecast growth in GDP. They typically vary from £2.021m for a fatal accident on a motorway to £20,953 for a slight accident on an urban road subject to a speed limit of 40mph or less, both in 2010 market prices. Details of the values and how they are calculated can be found at [Department for Transport - Transport Analysis Guidance - WebTAG - Documents - Guidance documents - expert](#)

Recurring: Climate Change Benefit

The average annual climate change benefit is **£0.2m** over 60 years (2010 Constant Market Prices – Undiscounted). The benefit arises as a result of a reduction in non-traded CO₂ emissions from vehicle traffic within the road network. The reduction occurs because the scheme results in less congestion across the network, thereby increasing speeds to a more carbon efficient level. This more than offsets the additional emissions from traffic generated by the scheme ie the demand response to the reduced road based travel costs resulting from the scheme.

Carbon benefits are an output of the TUBA program which is described above under the Transport Economic Efficiency benefit. In particular, TUBA calculates the total volume of fuel burned by vehicles in the road network in order to calculate the change in vehicle operating costs which form part of the transport economic efficiency benefit. Having calculated the volume of fuel used, it is straightforward for TUBA to then calculate total carbon emissions over the 60 year appraisal period for the with and without scheme scenarios.

WebTAG values of non-traded carbon for all future years and fuel types can be found at [Department for Transport - Transport Analysis Guidance - WebTAG - Documents - Guidance documents - expert](#)

Non-Monetised Benefits

The proposed scheme has no non-monetised benefits.

6. Rationale and Evidence for Proportional Approach

The proposed scheme is at an advanced stage and involves substantial expenditure. A Level 5 Analysis has therefore been undertaken in which all the impacts have been quantified and, where possible, monetised. The analysis has been undertaken in accordance with the full requirements of WebTAG. In particular, all the potential impacts identified in WebTAG have been quantified and all of these have been assessed using the methodologies prescribed therein.

7. Risks and Assumptions

A Quantified Risk Assessment has been undertaken in relation to risks affecting the costs of construction and a Risk Allowance of £25.53M in 2010 market prices is included in the scheme estimate.

The magnitude of the benefits is primarily dependent upon the accuracy of the traffic model and the future year forecasts of traffic demand. The primary issue with the modelling is that commercially available models are designed to deal with links which have static rather than dynamic traffic capacities ie capacities which change in response to traffic demand through opening of the hard shoulder. It has been necessary therefore to represent the operation of the managed motorway in a simplified and somewhat idealised manner. In order to ensure that the managed motorway operates as closely as possible to the way in which it has been modelled, the HA is developing a Managed Motorway Performance Reporting Tool. This is software which will collect and analyse traffic control centre data on how managed motorway has been operating. It will then identify changes that can be implemented to ensure that the system is being operated in an efficient manner, as per the modelling assumptions.

An implicit assumption is that road based travel will continue to have the same level of importance for the full 60 years of the appraisal period. Whilst this seems likely, there is much less certainty as to whether

Managed Motorway will continue in its present form for this length of time. However, since it is likely that any changes will be the result of innovation from experience or developments in technology, these can be expected to reduce the operating/maintenance costs and/or increase the benefits.

8. Direct Costs and Benefits to Business (One-In, One-Out Approach)

The One-in, One-out (OIOO) rule means that no new primary or secondary UK legislation that imposes costs on business can be brought “In” without the identification of existing regulations with an equivalent value that can be removed, or taken “Out”. The deployment of VMSL requires secondary legislation, as does the introduction of hard shoulder running. The proposals are therefore in scope for the OIOO rule.

The proposed managed motorway imposes no direct costs on business. The net impact on business is to increase business productivity by improving transport economic efficiency and journey time reliability for business users of the proposed scheme. Whilst business users also benefit from the reduction in accidents associated with the scheme, these are considered as indirect benefits and by definition excluded from consideration here. On balance, therefore, this scheme is “In” regulation with “Zero net cost” to business.

The computer program TUBA calculates the monetised transport economic efficiency benefits by different trip purposes: business users, commuting users and other users. Because INCA does not disaggregate the journey time reliability benefits by trip purpose, the percentage of transport economic efficiency benefits applying to business users calculated by TUBA (71%), has also been used to estimate the proportion of reliability benefits received by business users. The total Core Scenario forecast (Best Estimate) benefits to business and business users over 60 years are as follows (in 2009 market prices, discounted to 2010 at 3.5% for years 0-30 and 3% for years 31-60):

- Transport Economic Efficiency £403.9m
- Journey Time Reliability £29.6m

The equivalent annual values are as follows:

- Transport Economic Efficiency £17.6m
- Journey Time Reliability £1.3m

9. Wider Impacts

Consideration has been given to the list of potential impacts set out on Pages 16-18 of the IA Toolkit. A number of these are relevant to transport schemes and are recognised as potential impacts of transport schemes in WebTAG. This includes the economic impact on consumers and businesses, safety, crime, greenhouse gases, air quality, landscape, water environment and noise. Where these impacts are non-neutral, they are discussed in Section 5 above.

With the possible exception of an impact upon the justice system, the remaining potential impacts identified in the IA Toolkit are not relevant to the proposed scheme and can be considered as neutral. This includes health, education, waste management and human rights.

The potential impacts of the proposed scheme upon the justice system and equalities issues are described below.

9.1 Wider Economic Impacts

In accordance with WebTAG requirements, an assessment of the potential impact on Regeneration Areas has been undertaken. The assessment concluded that the proposed scheme will make a positive contribution to improving accessibility to employment opportunities within the regeneration areas adjacent to the scheme. However, whilst beneficial, these benefits were assessed as being marginal and not of sufficient magnitude to warrant a full quantitative assessment of job creation levels.

9.2 Justice System

In Managed Motorway schemes, the enforcement of VMSL will use the Highways Agency Digital Enforcement Camera System (HADECS). The digital photographs are transmitted electronically to a

Police Fixed Penalty Office (FPO), where the offending drivers are identified and appropriate action taken.

However, no additional enforcement cameras will be used in connection with this scheme and therefore the implementation of the scheme has no impact on the justice system.

9.2 Equalities

The Equality and Human Rights Commission Equality Impact Assessment guidelines have been followed in order to assess the impact of the proposed scheme on equality.

The scheme would not introduce any additional regulatory restrictions on the use of the motorway over and above those pertaining to the existing use. As such there are no specific impacts in terms of the public sector duties towards disability, gender (including gender identity), race, pregnancy and maternity, religion or belief, age, sexual orientation and discrimination in relation to marriage and civil partnership. Furthermore, whilst the use of motorways is restricted to certain categories of driver, based on tested ability to operate a vehicle, there is no additional or lesser restriction for the use of a managed motorway and, as such, the effect in terms of furthering equality aims has been assessed as neutral.

10. Recommendation, Implementation and Review

10.1 Proposed Solution

The proposed scheme involves the implementation of Managed Motorway between Junctions 5-8 of the M6 in Birmingham. The Managed Motorway system is essentially the Controlled Motorway (CM) system with a facility to provide additional traffic capacity by opening the hard shoulder to motorway traffic at busy times ie Hard Shoulder Running (HSR). In the case of the Birmingham Box Managed Motorways, the preferred option is MM rather than widening. This is because widening is considerably more expensive, ten times the cost of MM in this instance.

The purpose of the CM element of MM is to reduce the incidence of flow breakdown by using Variable Mandatory Speed Limits (VMSL) of 60, 50 and 40 mph to reduce the likelihood of faster moving upstream traffic “catching up” with a pocket of slower moving traffic and causing traffic density in this region to reach a level where flow breakdown occurs. By reducing the incidence of flow breakdown, there is less variation in journey times and journey times become more predictable or “reliable”.

The HSR element of MM reduces average journey times as well as improving journey time reliability. This is achieved because the hard shoulder temporarily acts as a running lane, thereby reducing traffic density and increasing traffic speeds above what they would otherwise be. The aim is to open the hard shoulder when traffic volume on the three normal lanes reduces average speeds to around 60mph and to then close it again (and remove the 60mph limit) when the volume has reduced to the extent that speeds on the normal three lanes would be in excess of 60.

In order for Managed Motorway to be successful, it is essential that the variable speed limits which form part of the system are complied with. This requires the speed limits to be mandatory. Secondary legislation is required to allow mandatory variable speed limits to operate. Secondary legislation is also required for the introduction of hard shoulder running.

Enforcement of the VMSL is planned to be carried out using a combination of gantry-mounted speed enforcement cameras and traditional enforcement by the Police. The Highways Agency Digital Enforcement Camera System (HADECS), which has been installed on the adjacent sections of Managed Motorway, will be used to automatically monitor compliance with the VMSL in operation on the scheme.

A summary of the costs and Core Scenario benefits (“Best Estimate” benefits) of the proposed scheme is provided in Table 2 below. The costs and benefits cover the standard DfT 60 year appraisal period from 2014. In accordance with the Treasury Green Book, the discount rate is 3.5% per year for 30 years from the present year and 3% per year thereafter.

Table 2 – Summary of 60 year Costs and Benefits (2010 Market Prices, Discounted to 2011)

Type of Cost (A)	Cost (£m)	Type of Benefit (B)	Benefit (£m)
Installation	117.1	Journey Times (TEE)	603.8
Operation	12.2	Vehicle Operating Costs (TEE)	1.6
Maintenance	16.1	Journey Time Reliability	28.9
Renewal	22.0	Incident Related Delay	15.5
Journey Times and Vehicle Operating Costs during Installation and Maintenance (TEE)	55.3	Accidents	65.6
Noise	18.8	Greenhouse Gases (CO ₂)	4.2
Loss of Tax Revenue	42.9		
ALL (TOTAL A)	£284.4	ALL (TOTAL B)	£719.6

Net Present Value (B-A)	£435.2
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10.2 Implementation Plan

It has been announced following the Government's Spending Review that, subject to the satisfactory completion of statutory processes where necessary, construction of the Managed Motorways Scheme will start during 2012/13. The Highways Agency is considering a detailed schedule for the Managed Motorway Scheme and a start date will be announced in due course.

10.3 Post Implementation Review (Evaluation)

The Post Implementation Review Plan is attached as Annex 1.

Annex 1: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. If the policy is subject to a sunset clause, the review should be carried out sufficiently early that any renewal or amendment to legislation can be enacted before the expiry date. A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below. If there is no plan to do a PIR please provide reasons below.

Basis of the review: [The basis of the review could be statutory (forming part of the legislation), i.e. a sunset clause or a duty to review, or there could be a political commitment to review (PIR)];

A review of the project performance will be undertaken in accordance with the Highways Agency's Post Opening Project Evaluation (POPE) process. This involves a formal evaluation of the project one year and five years after opening. More information on POPE can be found on the HA web site at:

[Highways Agency - Post Opening Project Evaluation \(POPE\)](#)

Review objective: [Is it intended as a proportionate check that regulation is operating as expected to tackle the problem of concern?; or as a wider exploration of the policy approach taken?; or as a link from policy objective to outcome?]

The objectives of the POPE review are to evaluate whether the predicted outcomes were realised and to identify any lessons learned as part of a continual improvement process.

Review approach and rationale: [e.g. describe here the review approach (in-depth evaluation, scope review of monitoring data, scan of stakeholder views, etc.) and the rationale that made choosing such an approach]

The approach to the review is as prescribed in the Highways Agency's POPE Methodology Handbook. It comprises:

- Before and after comparison of traffic flows and journey times
- Assessment against scheme objectives;
- Comparison of predicted against outturn traffic volumes;
- Comparison of predicted costs and benefits vs. outturn costs and benefits;
- Evaluation of the NATA objectives, as detailed in the AST, using POPE+ toolkit

Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured]

Existing situation without scheme.

Success criteria: [Criteria showing achievement of the policy objectives as set out in the final impact assessment; criteria for modifying or replacing the policy if it does not achieve its objectives]

Accuracy of traffic volumes, accidents and incident reductions, journey time reliability and outturn costs.

Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection of monitoring information for future policy review]

As prescribed in the Highways Agency's POPE Methodology Handbook. Existing arrangements for the collection of data relating to traffic flows, volumes, journey times and accidents will enable the systematic collection of monitoring information.

Reasons for not planning a review: [If there is no plan to do a PIR please provide reasons here]

Not Applicable.

APPENDIX B – CONSULTATION RESPONSE FORM

CONSULTATION RESPONSE FORM

MANAGED MOTORWAY SCHEME – M6 Junctions 5 to 8

Please complete this pro-forma and send to the address below:

Highways Agency
C/o: Paul Marsh
Mouchel
2 Rye Hill Office Park,
Allesley, Coventry,
CV5 9AB

Or alternatively you can respond to the consultation by email:

bb3mm.pmo@mouchel.com

PART 1 - Information about you

Name	
Address	
Postcode	
Email	
Company Name or Organisation (if applicable)	
Please tick one box from the list below that best describes you/ your company or organisation.	
<input type="checkbox"/>	Small to Medium Enterprise (up to 50 employees)
<input type="checkbox"/>	Large Company
<input type="checkbox"/>	Representative Organisation
<input type="checkbox"/>	Trade Union
<input type="checkbox"/>	Interest Group
<input type="checkbox"/>	Local Government
<input type="checkbox"/>	Central Government
<input type="checkbox"/>	Police
<input type="checkbox"/>	Member of the public
<input type="checkbox"/>	Other (please describe):

If you are responding on behalf of an organisation or interest group, how many members do you have and how did you obtain the views of your members:

If you would like your response or personal details to be treated confidentially please explain why:

PART 2 - Your comments

1. Do you consider that the proposal to introduce the Managed Motorway Scheme on the M6 between Junctions 5 to 8 will lead to an improvement in travelling conditions on this section of motorway?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
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Please add any comments:

2. Are there any aspects of the proposal to introduce the Managed Motorway Scheme on the M6 between Junctions 5 to 8 which give you concerns?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
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If yes, please give your comments:

3. Are there any additional comments you would like to make about the proposal to introduce the Managed Motorway Scheme on the M6 between Junctions 5 to 8?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, please give your comments:		

APPENDIX C – LIST OF CONSULTEES

Chairman (Traffic Committee) ACPO 7 th Floor 25 Victoria St London SW1H 0EX	Chief Executive Advantage West Midlands 3 Priestley Wharf Holt Street Aston Science Park Birmingham B7 4BN
Chief Executive AIRSO 68 The Boulevard Worthing BN13 1LA	Chief Executive Ambulance Services Association Friars House 157-168 Blackfriars Rd London SE1 8EU
The Secretary Association of British Drivers P.O. Box 2228 Surrey CR8 5ZT	The Secretary Association of British Insurers 51 Gresham Street London EC2V 7HQ
Chief Executive Association of Vehicle Recovery Operators 1 Bath Street Rugby CV21 3JF	Operations Director Automobile Association Ltd Norfolk House Priestly Road Basingstoke Hampshire RG24 9NY
The Chair Birmingham Chamber of Commerce and Industry 75 Harborne Road Edgbaston Birmingham B15 3DH	Chief Officer Birmingham City Council Council House Birmingham B1 1BB
Chief Executive Officer Birmingham International Airport Birmingham B26 3QJ	Executive Director BRAKE P.O. Box 272 Dorking Surrey RH4 4FR
The Secretary British Insurance Brokers' Association 14 Bevis Marks, London EC3A 7NT	The Chair British Motorcyclist Federation 25 Warren Parkway Enderby Leicestershire LE19 45A

Divisional Commander British Transport Police PO Box 5585 New Street Railway Station Birmingham B2 4QB	Operating Director Britannia Rescue Freepost HF118 Huddersfield HD1 1JF
Head of Transportation Bromsgrove District Council The Council House Burcot Lane Bromsgrove Worcestershire B60 1AA	The Chairman Campaign for Better Transport 12-18 Hoxton Street London N1 6NG
The Chair Campaign to Protect Rural England National Office 128 Southwark Street London SE1 0SW	The Chairman CBI West Midlands 4 th Floor 1 Hagley Road Edgbaston Birmingham B16 8TG
The Chairman CECA CECA Midlands Ltd Lasyard House Underhill Street Bridgnorth CWV16 4BB	The Secretary Central Council of Magistrates Courts Committees 185 Marylebone Road London NW1 5QB
Chief Executive Centro Centro House 16 Summer Lane Birmingham B19 3SD	Chief Officer Chief Fire Officers Association 9-11 Pebble Close Tamworth Staffordshire B77 4RD
Chief Executive CILTUK Earlstrees Court Earlstrees Road Corby Northants NN17 4AX	The Director Civil Engineering Contractors Association Construction House 56-64 Leonard Street London EC2A 4JX
Regional Policy Director Confederation of West Midlands Chambers of Commerce C/o Advantage West Midlands 3 Priestly Wharf Hold Street Aston Science Park Birmingham B7 4BN	Chief Executive Coventry and Warwickshire Chamber of Commerce and Industry Oak Tree Court Binley Business Park Harry Weston Road Coventry CV3 2UN

President CSS County Hall Matlock Derbyshire DE4 3AG	Defensive Driver Training Ltd Douglas House 217 Long Lane Halesowen B62 9JT
Executive Director The Disabled Drivers' Association P.O. Box 7218 Great Holm Milton Keynes MK8 9XN	The Chief Executive Disabled Drivers' Motor Club Cottingham Way Thrapston Northamptonshire NN14 4PL
The Chair Disabled Persons Transport Committee Department for Transport 1/14 Great Minister House 76 Marsham Street London SW1P 4DR	The Honorary Secretary District Courts Association P.O. Box 14 Civic Centre Motherwell ML1 1TW
Chief Executive Driving Standards Agency Stanley House 56 Talbot Street Nottingham NG1 5GU	The Chairman Essington Parish Council Community Centre Hobnock Road Essington South Staffordshire WV11 2RF
Chief Executive Freight Transport Association Hermes House 20 Coventry Road Cubbington Leamington Spa Warwickshire CV32 7JN	Regional Co-ordinator Friends of the Earth West Midlands Office 54-57 Allison Street Digbeth Birmingham
The Director Government Office for the West Midlands 77 Paradise Circus, Queensway Birmingham B1 2DT	Operations Director Green Flag Cote Lane Dawsons Corner Pudsey Leeds LS28 5GF
The Chair Health and Safety Executive 1 Hagley Road Birmingham B16 8HS	The Chief Executive Herefordshire and Worcestershire Chamber of Commerce Enterprise House Castle Street Worcester Worcestershire WR1 3EN

Chief Officer Hereford and Worcester Fire and Rescue Fire Brigade Headquarters Copenhagen Street Worcester WR1 2HQ	The Manager IKEA Wednesbury Park Lane Wednesbury, West Midlands WS10 9SF
The Chair Institute of Advanced Motorists I.A.M. House 359 Chiswick High Road London W4 4HS	Director of Technical Affairs Institution of Highways and Transportation 6 Endsleigh Street London WC1H 0DZ
The President Institution of Civil Engineers 1 Great George Street Westminster London SW1P 3AA	National Secretary Institute of Road Safety Officers IRSO Head Office Pin Point, Rosslyn Crescent Harrow HA1 2SU
Chief Executive Institute of Vehicle Recovery Operators Top Floor Bignell House, Horton Road West Drayton Middlesex UB7 8EJ	The Secretary Justices' Clerk Society Port of Liverpool Building Pier Head Liverpool L3 1BY
The Chair Local Government Association Local Government House Smith Square London SW1P 3HZ	The Secretary Magistrates' Association 28 Fitzroy Square London W1P 6DD
Midland Expressway Ltd Mill Lane Shenstone Staffordshire WS14 0GA	DE&S Secretariat Ministry of Defence Spur 5 E Block Ensleigh Bath BA1 5AB
Chief Constable Ministry of Defence Police Building 66 MDP Wethersfield Braintree Essex CM7 4AZ	Operations Director Mondial Assistance Mondial House 102 George Street Croydon Surrey CR9 1AJ

Chairman and Director Motorcycle Action Group Central Office Rugby CV21 3ZR	The Chair Motorcycle Rider Training Association 22-24 Clarendon Road Cambridge CB2 2BH
Contracts Manager National Traffic Control Centre 3 Ridgeway Quinton Business Park Quinton Expressway B32 1AF	Chief Executive National Tyre Distributors Association 8 Temple Square Aylesbury Bucks HP20 2QH
Chief Officer NEC The NEC Group Birmingham B40 1NT	The Chair Parliamentary Advisory Council for Transport Safety 3rd Floor Clutha House 10 Storey's Gate London SW1P 3AY
The Chair Police Federation 15/17 Langley Road Surbiton KT6 6LP	Chief Officer RAC Foundation 89-91 Pall Mall London SW1Y 5HS
Operations Director RAC Motoring Services RAC House Brockhurst Crescent Walsall WS5 4QZ	Regimental Secretary RHQ RMP Defence Police College Policing and Guarding Postal Point 38 Southwick Park Fareham Hants PO17 6EJ
The Chair Road Haulage Association Roadway House 35 Monument Hill, Weybridge Surrey KT13 8RN	The Chairman Road Rescue Recovery Association Hubberts Bridge Rd Kirton Holme Boston Lincolnshire PE20 1TW
The Chair RoSPA Edgbaston Park 353 Bristol Road Birmingham B5 7ST	Head of Roads Safety Sandwell Road Safety Organisation P.O. Box 42 Lombard Street West Bromwich B70 8RU
Chief Officer Solihull Metropolitan Borough Council P.O. Box 18 The Council House Solihull	Chief Officer Staffordshire Fire and Rescue Headquarters Pirehill House Aston

West Midlands B91 3QS	Stone Staffordshire ST15 0BS
Hon Secretary Superintendents Traffic Association Cheshire Constabulary Clemonds Hey Oakmere Road Winsford CW7 2UA	The Secretary The British Roads Federation Pillar House 194-202 Old Kent Road London SE1 5TG
The Managing Director The British School of Motoring 1 Forest Road Feltham TW13 7RR	The Manager The Freight Transport Association Springwood House Low Lane Horsforth Leeds LS18 5NU
Chief Executive The Chartered Institute of Logistics and Transport (UK) Earlstrees Court Corby Northants NN17 4AX	Chief Executive VOSA Berkeley House Croydon Street Bristol BS5 0DA
Chief Officer Warwickshire Fire and Rescue Service Warwick Street Royal Leamington Spa CV32 5LH	Chief Officer West Midlands and Shropshire Ambulance Service NHS Trust Millennium Point Waterfront Business Park Waterfront Way Brierley Hill West Midlands DY5 1LX
Chief Officer West Midlands Casualty Reduction Partnership Units 1&2 20-22 Avenue Road Aston Birmingham B6 4DY	Chief Officer West Midlands Fire Service Headquarters Lancaster Circus Queensway Birmingham B4 7DE
Director Policy Development West Midlands Local Government Association 4 th Floor Lombard House 145 Great Charles Street Birmingham B3 3LS	Chief Constable Warwickshire Police Warwickshire Constabulary HQ P.O. Box 4 Leek Wootton Warwickshire CV35 7QB

Regional Operations Manager West Midlands RCC 3 Ridgeway Quinton Business Park Quinton Expressway Birmingham B32 1AF	The Chair West Midlands Wildlife Trust 28 Harborne Road Birmingham B15 3AA
Chief Executive Walsall Council The Civic Centre Walsall West Midlands WS1 1TP	Chief Constable West Midlands Police Lloyd House 2 Colmore Circus Queensway Birmingham B4 6AT
Head of Transportation Wolverhampton City Council Civic Centre St. Peter's Square Wolverhampton WV1 1SH	Head of Engineering and Transport Walsall Metropolitan Borough Council Civic Centre, The Civic Centre Walsall WS1 1TP
Head of Transportation Sandwell Council Freeth Street PO Box 2374 Oldbury B69 3DE	Head of Transportation Dudley Metropolitan Borough Council Council House Priory Road Dudley DY1 1HF
Head of Transportation Staffordshire County Council St Chad's Place Stafford ST16 2LR	Head of Transportation Shropshire Council Chief Executive's Office Shirehall Abbey Foregate Shrewsbury Shropshire SY2 6ND
Head of Engineering & Transport Warks County Council Warwickshire County Council Shire Hall Warwick CV34 4SA	Head of Engineering & Transport South Staffordshire Council Council Offices Wolverhampton Road Codsall South Staffordshire WV8 1PX

**APPENDIX D – Q&A FOR M6 JUNCTIONS 5-8 CONSULTATION ON
BIRMINGHAM BOX PHASE 3 MANAGED MOTORWAYS**

APPENDIX D: Q&A FOR M6 JUNCTIONS 5-8 CONSULTATION ON BIRMINGHAM BOX PHASE 3 MANAGED MOTORWAYS

Q. What is happening?

A. The Birmingham Motorway Box comprises sections of the M42, M6 and M5 and provides a 'ring road' to the West Midlands conurbation. From Junctions 5 to 8 the M6 is a heavily congested section in the motorway network that carries strategic transport flows, including between 20% and 35% heavy goods vehicles, through the major conurbation of Birmingham in the West Midlands, linking the M1 and the North West of England. The AM and PM peak journey times between junctions 5 and J8 are between +55% and +65% greater than during free flow conditions. The resulting congestion increases business costs and reduces mobility. It is anticipated that the Managed Motorway Scheme will reduce congestion; provide more reliable journey times; reduce the number and severity of personal injury accidents; increase and improve the quality of information for road users.

Q. Why is the HA consulting?

A. This consultation will provide an opportunity for interested parties and individuals to comment on the legislative changes required to allow for the implementation of Variable Mandatory Speed Limits and Hard Shoulder Running on this section of the M6.

Q. Who can respond to this?

A. This consultation is available for anyone to respond to, including organisations that would be affected by the implementation of Variable Mandatory Speed Limits and Hard Shoulder Running. The consultation is aimed at any affected stakeholder groups and the general public.

Q. Is the introduction of Variable Mandatory Speed Limits and Hard Shoulder Running likely to be effective?

The introduction of Variable Mandatory Speed Limits and Hard Shoulder Running on sections of the M6 and M42 round Birmingham have shown a reduction in congestion and collisions and improved traffic flows resulting in more reliable journey times.

The M42 Managed Motorways Three-Year Safety Review, which looks at accident data before and after the scheme was delivered shows that personal injury accidents have reduced by more than half (56%) since Hard Shoulder Running was introduced. There was also an overall reduction in the severity of accidents with zero fatalities and fewer seriously injured.

Q. Why have a variable speed limit? Why not a fixed speed limit?

A. By varying the mandatory speed limit the Highways Agency can manage the flow of traffic more effectively. The speed limits displayed on the motorway will take account of prevailing traffic conditions with the aim of ensuring the smooth flow of traffic. It is part of introducing Managed Motorways - which is

about modernising the operation of our motorways and finding the best solution for different parts of the network.

Q. How does it work?

- A. The Variable Mandatory Speed Limits and messages shown on the gantries are automatically displayed in response to the level of congestion. Sensors in the road surface detect the speed, volume and flow of traffic which then calculate the optimum speed to keep traffic moving, reducing the level of 'stop-start' traffic which leads to congestion – this is undertaken automatically at the roadside. Drivers see the current speed limit displayed on electronic signals on the overhead gantries.

When additional capacity is required, and the operator in the Highways Agency West Midlands Regional Control Centre has performed the necessary safety checks then the operator will open the hard shoulder as an additional running lane.

Q. When are the variable speed limits likely to become mandatory?

- A. We are hoping to implement the Variable Mandatory Speed Limits and Hard Shoulder Running in early 2014.

Q. So what is the point of the consultation?

- A. The Highways Agency is committed to effective consultation and complies with the Government's Code of Practice on Consultation. Effective consultation with affected stakeholders and the general public brings to light valuable information which we are able to use to design effective solutions and mitigate any concerns.

Following the consultation period, responses will be issued where appropriate and a summary report compiled which will provide an analysis of the responses and provide justification for the selected option.

Enforcement Q&A

Q: Are Variable Mandatory Speed Limits linked to safety cameras?

- A: Yes, and as the Variable Mandatory Speed Limits change, the safety cameras will be automatically adjusted to suit the currently signalled limits.

Q: How are you going to enforce the speed limits?

- A: The speed limits are enforced by the Police.

There are cameras on the gantries for use in enforcement. As per the Highway Code, any sign in a red circle is mandatory so the speed limits are legally enforceable.

The system takes a spot speed of vehicles as they pass beneath a gantry which is showing the Variable Mandatory Speed Limit.

Q: How will the Variable Mandatory Speed Limits be enforced during normal motorway conditions?

A: Enforcement is a matter for the police, who will continue to enforce the national speed limits, as on all roads including motorways.

Q: What happens if I travel beneath a signal when it changes?

A: When the cameras are in operation there is a built in time delay from the switching of the signal/speed limit to when the cameras will actually enforce – once mandatory. When there is a change in the speed limit displayed on the speed limit sign and if the vehicle had passed that sign ten seconds earlier, then the speed limit applicable to the driver of the vehicle will be the speed limit displayed on that sign prior to it changing.

-Ends-

**APPENDIX E – THE M6 MOTORWAY (JUNCTIONS 5 TO 8) (ACTIVELY
MANAGED HARD SHOULDER AND VARIABLE SPEED LIMITS) DRAFT
REGULATIONS 201X**

STATUTORY INSTRUMENTS

2012 No. 0000

ROAD TRAFFIC

The M6 Motorway (Junctions 5 to 8) (Actively Managed Hard Shoulder and Variable Speed Limits) Regulations 2012

<i>Made</i>	- - - -	2012
<i>Laid before Parliament</i>		2012
<i>Coming into force</i>	- -	2012

The Secretary of State makes the following Regulations in exercise of the powers conferred by section 17(2) and (3) of the Road Traffic Regulation Act 1984(a).

Representative organisations have been consulted in accordance with section 134(2) of that Act.

Citation and commencement

1. These Regulations may be cited as the M6 Motorway (Junctions 5 to 8) (Actively Managed Hard Shoulder and Variable Speed Limits) Regulations 2012 and come into force on [] 2012.

Interpretation

2. In these Regulations—

“the 1982 Regulations” means the Motorways Traffic (England and Wales) Regulations 1982(b);

“the 2002 Regulations” means the Traffic Signs Regulations 2002(c);

“carriageway”, “hard shoulder”, “motorway” and “verge” have the same meaning as in the 1982 Regulations;

“emergency refuge area” means a part of a motorway—

- (a) which is adjacent to and situated on the left-hand or near side of the hard shoulder or carriageway when facing in the direction in which, in accordance with regulation 6 of the 1982 Regulations, vehicles may be driven, and
- (b) whose boundary with the hard shoulder or carriageway is indicated by a marking of the type shown in diagram 1010 in Schedule 6 to the 2002 Regulations; and

(a) 1984. c. 27. Section 17(2) was amended by the New Roads and Street Works Act 1991 (c. 22), Schedule 8, Part 2, paragraph 28(3); section 17(2)(b) was amended by the Road Traffic Act 1991 (c. 40), Schedule 8; section 17(2)(d) was inserted by the Road Traffic Act 1991, Schedule 4, paragraph 25. There are other amendments to sections 17 and 134 which are not relevant to these Regulations.

(b) S. I. 1982/1163, as amended by S. I. 1983/374, 1984/1479, 1992/1364 and 2004/3258.

(c) Part 1 of S. I. 2002/3113; as amended by S. I. 2005/1670 and 2011/3041. There are other amending instruments but none is relevant.

“relevant roads” means the lengths of carriageway specified in Schedule 1 together with the adjacent hard shoulders, emergency refuge areas and verges.

Modification of the 1982 Regulations to allow for actively managed hard shoulder

3.—(1) In relation to the relevant roads, the 1982 Regulations have effect as if they were modified as follows.

(2) Paragraph (1) of regulation 3 (interpretation) has effect as if—

(a) after sub-paragraph (a), there were inserted—

“(aa) “actively managed hard shoulder” means the hard shoulder of the relevant roads;”;

(b) in sub-paragraph (b)(i) after “the motorway”, there were inserted “, and includes the actively managed hard shoulder when it is treated as a lane of the carriageway in accordance with regulation 5A(3)”;

(c) after sub-paragraph (c), there were inserted—

“(ca) “emergency refuge area” means a part of a motorway—

(i) which is adjacent to and situated on the left-hand or near side of the hard shoulder or carriageway when facing in the direction in which, in accordance with regulation 6, vehicles may be driven, and

(ii) whose boundary with the hard shoulder or carriageway is indicated by a marking of the type shown in diagram 1010 in Schedule 6 to the Traffic Signs Regulations 2002;”;

(d) in sub-paragraph (e) after “hard shoulder means”, there were inserted “, subject to regulation 5A,”;

(e) after sub-paragraph (f), there were inserted—

“(fa)“relevant roads” has the meaning given to it by regulation 2 of the M6 Motorway (Junctions 5 to 8) (Actively Managed Hard Shoulder and Variable Speed Limits) Regulations 2012;” and

(f) in sub-paragraph (g) after “hard shoulder,”, there were inserted “an emergency refuge area,”.

(3) Regulation 4 (application) has effect as if for that regulation there were substituted—

“Application

4. These Regulations apply to the relevant roads.”

(4) The 1982 Regulations have effect as if after regulation 5 (vehicles to be driven on the carriageway only) there were inserted—

“Use of actively managed hard shoulder

5A.—(1) Subject to the following provisions of these Regulations, a vehicle may be driven on a relevant length of the actively managed hard shoulder.

(2) The relevant length of the actively managed hard shoulder shall be treated for the purposes of these Regulations as a lane of the carriageway.

(3) Accordingly where paragraph (2) applies, references in these Regulations—

(a) to a carriageway shall be treated as including references to the relevant length of the actively managed hard shoulder; and

(b) to a hard shoulder, except in regulation 3(1), shall be treated as excluding references to the relevant length of the actively managed hard shoulder.

(4) For the purposes of this regulation “relevant length” in relation to the actively managed hard shoulder means a length of the actively managed hard shoulder that—

- (a) begins immediately after an overhead gantry on which directly above the actively managed hard shoulder there is displayed a traffic sign of the type shown in diagram 670 in Schedule 2 to the Traffic Signs Regulations 2002 indicating that a speed limit other than the national speed limit applies to the actively managed hard shoulder; and
- (b) ends immediately before an overhead gantry on which directly above the actively managed hard shoulder there is displayed a traffic sign of the type shown in diagram 5003.1 in Schedule 10, or 6031.1 in Schedule 11, to the Traffic Signs Regulations 2002.”.

(5) In regulation 7 (restrictions on stopping), paragraph (2) has effect as if at the end, after “carriageway”, there were added “or on any emergency refuge area which is adjacent to that carriageway or hard shoulder”.

(6) Paragraph (3)(a) and (b) of regulation 7, regulation 9 (restriction on the use of hard shoulders), and paragraph (b)(i) of regulation 14 (restrictions affecting animals carried in vehicles) have effect as if, after “hard shoulder” (in each place), there were inserted “or emergency refuge area”.

(7) Paragraph (2) of regulation 12 (restriction on use of right hand or off side lane) has effect as if, after “three or more traffic lanes”, there were inserted “(including the actively managed hard shoulder when it is in use as a lane of the carriageway in accordance with regulation 5A)”.

Variable speed limits

4.—(1) No person shall drive a vehicle on a section of a road which is subject to a variable speed limit at a speed exceeding that indicated by a speed limit sign.

(2) A section of a road is subject to a variable speed limit in relation to a vehicle being driven along it if—

- (a) the road is specified in Schedule 2;
- (b) the vehicle has passed a speed limit sign; and
- (c) the vehicle has not passed—
 - (i) another speed limit sign indicating a different speed limit; or
 - (ii) a traffic sign which indicates that the national speed limit is in force.

(3) In relation to a vehicle, the speed limit indicated by a speed limit sign is the speed shown at the time the vehicle passes the sign, or, if higher, the speed limit shown by the sign ten seconds before the vehicle passed the sign.

(4) For the purpose of this regulation a speed limit sign is to be taken as not indicating any speed limit if, ten seconds before the vehicle passed it, the sign had indicated no speed limit or that the national speed limit was in force.

(5) In this regulation—

“national speed limit” has the meaning given by regulation 5(2) of the 2002 Regulations and a traffic sign which indicates that the national speed limit is in force means a traffic sign of the type shown in diagram 671 in Schedule 2 to the 2002 Regulations which is—

- (a) placed on or near a road; and
- (b) directed at traffic on the carriageway on which the vehicle is being driven;

“road” includes the adjacent hard shoulder and verge;

“speed limit sign”, in relation to a vehicle, means a traffic sign of the type shown in diagram 670 in Schedule 2 to the 2002 Regulations which is—

- (a) situated on or near any part of a road specified in Schedule 2; and
- (b) directed at traffic on the carriageway on which the vehicle is being driven.

Signed by the authority of the Secretary of State for Transport

Date

Parliamentary Under Secretary of State
Department for Transport

SCHEDULE 1

Regulation 2

RELEVANT ROADS

1. The relevant roads are—

- (a) the northbound carriageway of the M6 beginning at a point which is 47 metres after marker post 178/3 and 53 metres before marker post 178/4 and ending at marker post 189/9; and
- (b) the southbound carriageway of the M6 beginning at marker post 189/9 and ending at a point which is 55 metres after marker post 178/3 and 45 metres before marker post 178/2.

2. Any reference in this Schedule to the letter “M” followed by a number is a reference to the motorway known by that name.

SCHEDULE 2

Regulation 4(2)(a)

SPECIFIED ROADS

1. The specified roads are—

- (a) the northbound carriageway of the M6 beginning at a point which is 47 metres after marker post 178/3 and 53 metres before marker post 178/4 and ending at a point which is 75 metres after marker post 193/5 and 25 metres before marker post 193/6;
- (b) the carriageways of the northbound slip roads;
- (c) the southbound carriageway of the M6 beginning at a point which is 37 metres after marker post 193/5 and 63 metres before marker post 193/4 and ending at a point which is 55 metres after marker post 178/3 and 45 metres before marker post 178/2; and
- (d) the carriageways of the southbound slip roads.

2. Any reference in this Schedule to—

- (a) the letter “M” followed by a number or a number followed by the letter “M” is a reference to the motorway known by that name;
- (b) the letter “A” followed by a number is a reference to the road known by that name; and
- (c) a junction followed by a number is (unless the context otherwise requires) a reference to the junction of the M6 of that number.

3. In this Schedule—

“northbound slip roads” is a reference to the lengths of road specified in paragraph 4;

“off-slip road” means a slip road intended for use of traffic exiting the M6;

“on-slip road” means a slip road intended for use of traffic entering the M6; and

“southbound slip roads” is a reference to the lengths of road specified in paragraph 5.

4. The northbound slip roads are —

- (a) the off-slip roads which connect the northbound carriageway of the M6 with the—
 - (i) southbound carriageway of the A38M (Aston Expressway); and
 - (ii) Salford roundabout;at junction 6.
- (b) the on-slip roads which connect at junction 6 the—
 - (i) Salford roundabout; and

- (ii) northbound carriageway of the A38M (Aston Expressway);
with the northbound carriageway of the M6.
- (c) the off-slip road which connects the northbound carriageway of the M6 to the Birmingham Road roundabout at junction 7;
- (d) the on-slip road which connects at junction 7 the Birmingham Road roundabout with the northbound carriageway of the M6; and
- (e) the linking carriageway which connects the M6 at junction 8 with the start of the M5 southbound commencing where the carriageway diverges from the M6 northbound and ending where the carriageway merges with the M5 southbound.

5. The southbound slip roads are—

- (a) the linking carriageway which connects the end of the M5 northbound with the M6 at junction 8 commencing where the carriageway diverges from the M5 northbound and ending where the carriageway merges with the M6 southbound;
- (b) the on-slip road which connects at junction 7 the Birmingham Road roundabout with the southbound carriageway of the M6;
- (c) the off-slip road which connects the southbound carriageway of the M6 to the Birmingham Road roundabout at junction 7;
- (d) the on-slip roads which connect at junction 6 the—
 - (i) Salford roundabout; and
 - (ii) northbound carriageway of the A38M (Aston Expressway);
with the southbound carriageway of the M6;
- (e) the off-slip roads which connects the southbound carriageway of the M6 with the—
 - (i) southbound carriageway of the A38M (Aston Expressway); and
 - (ii) the Salford roundabout;
at junction 6.

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations introduce variable speed limits to the M6 Motorway from junctions 5 to 8 and on associated slip roads and linking carriageways.

The Regulations also modify the way that the Motorway Traffic (England and Wales) Regulations (“the 1982 Regulations”) apply to the carriageways of the M6 motorway between junctions 5 and 8 and create the concept of an ‘actively managed hard shoulder’; this is a hard shoulder which, in certain circumstances, may be driven on.

Regulation 3 provides for the 1982 Regulations to apply as if a new regulation 5A were inserted, which provides that the hard shoulder of a relevant road may be used as a carriageway where a speed limit sign is displayed above the hard shoulder.

Regulation 3 also provides for the 1982 Regulations to apply as if the concept of the ‘emergency refuge area’ were introduced. Where a hard shoulder is actively managed, this emergency refuge area has the same function as a hard shoulder.

Regulation 4 provides for variable speed limits to have effect on the roads specified in Schedule 2. Where variable speed limit signs are in operation a vehicle may not be driven at a speed above the maximum indicated by each speed limit sign passed by the vehicle until it passes a sign indicating that the national speed limit applies or the vehicle leaves the roads covered by the regulation. Where a speed limit changes less than 10 seconds before a vehicle passes the sign and the sign had indicated a higher speed limit, the regulation allows the driver to proceed at a speed up to the maximum applicable before the change. Where the speed limit sign indicates a speed limit when it is passed by a vehicle but less than 10 seconds previously it was either giving no indication of a speed limit or that the national speed limit applied, the sign is to be taken as giving no indication of a speed limit to the vehicle passing it.

Contravention of the Regulations is an offence under section 17(4) of the Road Traffic Regulation Act 1984.

A full regulatory impact assessment of the effect that this instrument will have on the costs of business and the voluntary sector is available from the [M6 Junctions 5 to 8 Managed Motorways Team, Highways Agency, The Cube, 199 Wharfside Street, Birmingham, B1 1NR] and is annexed to the Explanatory Memorandum which is available alongside the instrument on www.legislation.gov.uk. A copy has also been placed in the library of each House of Parliament.