

M25 Controlled Motorway
Consultation Document

January 2013

M25 Junction 27 to 30



November 2012

Summary of the Consultation

Topic of this consultation:	The M25 Junctions 27 to 30 Controlled Motorway Scheme.
Scope of this consultation:	We are keen to have your comments on the proposal to introduce variable mandatory speed limits on the M25 between Junctions 27 to 30 (“the Controlled Motorway Scheme”) specifically how they could affect your organisation or those you represent.
Geographical scope:	This consultation covers the Controlled Motorway Scheme which will enable proactive management of the motorway network in Essex.
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 8 weeks commencing on 22 January 2013. The consultation will close on 19 March 2013. Please ensure responses arrive no later than that date.
Enquiries:	John Martin Highways Agency Federated House London Road Dorking Surrey RH4 1SZ Email: M25Widening@highways.gsi.gov.uk

<p>How to Respond:</p>	<p>Please send your consultation response using the “Consultation Response Form” at Appendix B to:</p> <p>John Martin Highways Agency Federated House London Road Dorking Surrey RH4 1SZ</p> <p>Or you can respond to the consultation by email:</p> <p>M25Widening@highways.gsi.gov.uk</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 assembled.</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: http://www.highways.gov.uk/consultations</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’s response.</p> <p>Subject to the results of the consultation, we envisage that the variable mandatory speed limits will be introduced in August 2013.</p>
<p>Compliance with the Consultation Principles:</p>	<p>This consultation complies with the Government’s Consultation Principles.</p>

Background

Getting to this stage:	<p>In November 2002, the London Orbital Multi-Modal Study (ORBIT MMS) made recommendations for a long-term strategy to address congestion and traffic growth on the M25. The study among other things recommended improvement works to the M25 including widening parts of the motorway between Junctions 16 and 30, between Junction 1b and 3, and between Junctions 5 and 7.</p> <p>The Government has acted upon this recommendation and undertaken a £6 billion investment programme to improve and make better use of motorways and other key roads. Whilst being widened, the works will also include the introduction of variable mandatory speed limits, which builds upon similar schemes already introduced on the M25 and is a scheme to tackle congestion through the introduction of new technology.</p>
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Executive Summary

This consultation will provide an opportunity for interested parties and individuals to comment on the proposal to introduce variable mandatory speed limits on the M25 between Junctions 27 and 30 (“the Controlled Motorway Scheme”). Secondary legislation in the form of regulations made under section 17 of the Road Traffic Regulation Act 1984 will be required to implement the Controlled Motorway Scheme.

The proposed regulations will restrict drivers from driving 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 Regulations are not attached to this document but what they implement is clearly explained in this document.

The Controlled Motorway Scheme will enable proactive management of the motorway network in Hertfordshire, an area with a previous history of congestion and accidents. The speed limits that will be displayed on the motorway will take into account prevailing traffic conditions with the aim of ensuring the smooth flow of traffic. The mandatory speed limits will be clearly displayed above each lane of the main carriageway.

We are keen to have your comments on the proposal to introduce variable mandatory speed limits in this area, specifically how they could affect your organisation or those you represent. Similarly we 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

The Highways Agency is committed to building upon the success of the existing controlled motorways scheme which has been operational on the M25 between Junctions 10 and 15 since 1995, and was extended to Junction 16 in 2002. It is expected that the Controlled Motorway Scheme will:

- Reduce congestion
- Provide more reliable journey times
- Reduce the frequency of accidents
- Reduce carbon emissions
- Reduce driver stress

Variable Mandatory Speed Limits will be introduced following the widening works which have now been completed on this stretch of the M25.

1 HOW ARE WE CONDUCTING THE CONSULTATION

1.1 WHAT IS THIS CONSULTATION ABOUT?

We are consulting on the proposal that will allow the operation of variable mandatory speed limits on the M25 between Junctions 27 and 30 (the Controlled Motorway Scheme).

1.2 WHY DO WE NEED THIS NEW TECHNOLOGY?

The Government has undertaken a £6 billion investment programme to improve and make better use of motorways and other key roads. 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 and reducing clear-up times; and
- Reducing congestion and increasing the reliability of journey times.

The use of variable mandatory speed limits is an essential element in achieving these requirements. It is aimed at tackling congestion through the introduction of technology to make best use of the existing road space whilst maintaining and where possible, improving current safety standards. It is important to note that the policy regarding variable mandatory speed limits is settled and we are therefore consulting on its application at this location.

1.3 JOINING THE DEBATE

We would like to encourage any representative organisations, businesses or individuals affected by the proposed Regulation 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.

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 19 March 2013.

John Martin
Highways Agency
Federated House
London Road
Dorking
Surrey

RH4 1SZ

Email: M25Widening@highways.gsi.gov.uk

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 other 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 scheme you can contact our Highways Agency Information Line on: 0300 123 5000 where a representative will get back to you with a response to your questions. Alternatively visit the Highways Agency website at: <http://www.highways.gov.uk/consultations>

Government's Consultation Principles

We are conducting this consultation in accordance with the Government's Consultation Principles. The key consultation principles are listed below.

- 1) Departments will follow a range of timescales rather than defaulting to a 12-week period, particularly where extensive engagement has occurred before;
- 2) Departments will need to give more thought to how they engage with and consult with those who are affected;
- 3) Consultation should be 'digital by default', but other forms should be used where these are needed to reach the groups affected by a policy; and
- 4) The principles of the Compact between government and the voluntary and community sector will continue to be respected.

If you have reason to believe this Paper does not comply with these Principles, please write to our consultation coordinator at the address below, setting out the areas where you believe this Paper does not meet the criteria:

Ian Sweeting
Highways Agency
The Cube
Birmingham
B1 1RN

Email: ian.sweeting@highways.gsi.gov.uk

Further information about the Consultation Principles is available on the Better Regulation Executive website at:

<https://update.cabinetoffice.gov.uk/resource-library/consultation-principles-guidance>

2 GENERAL INFORMATION ON THE CONTROLLED MOTORWAYS SCHEME

2.1 PROPOSED EXTENT OF THE CONTROLLED MOTORWAY SCHEME

A map showing the Controlled Motorway Scheme is shown in Figure 2A, including the proposed extent of the scheme. The precise configuration of the extent of the roads that are included within the scheme may be subject to variation. The Controlled Motorway Scheme will include the motorway and the on-slip and the off-slip roads between Junctions 27 (M11) and 30 (A13).

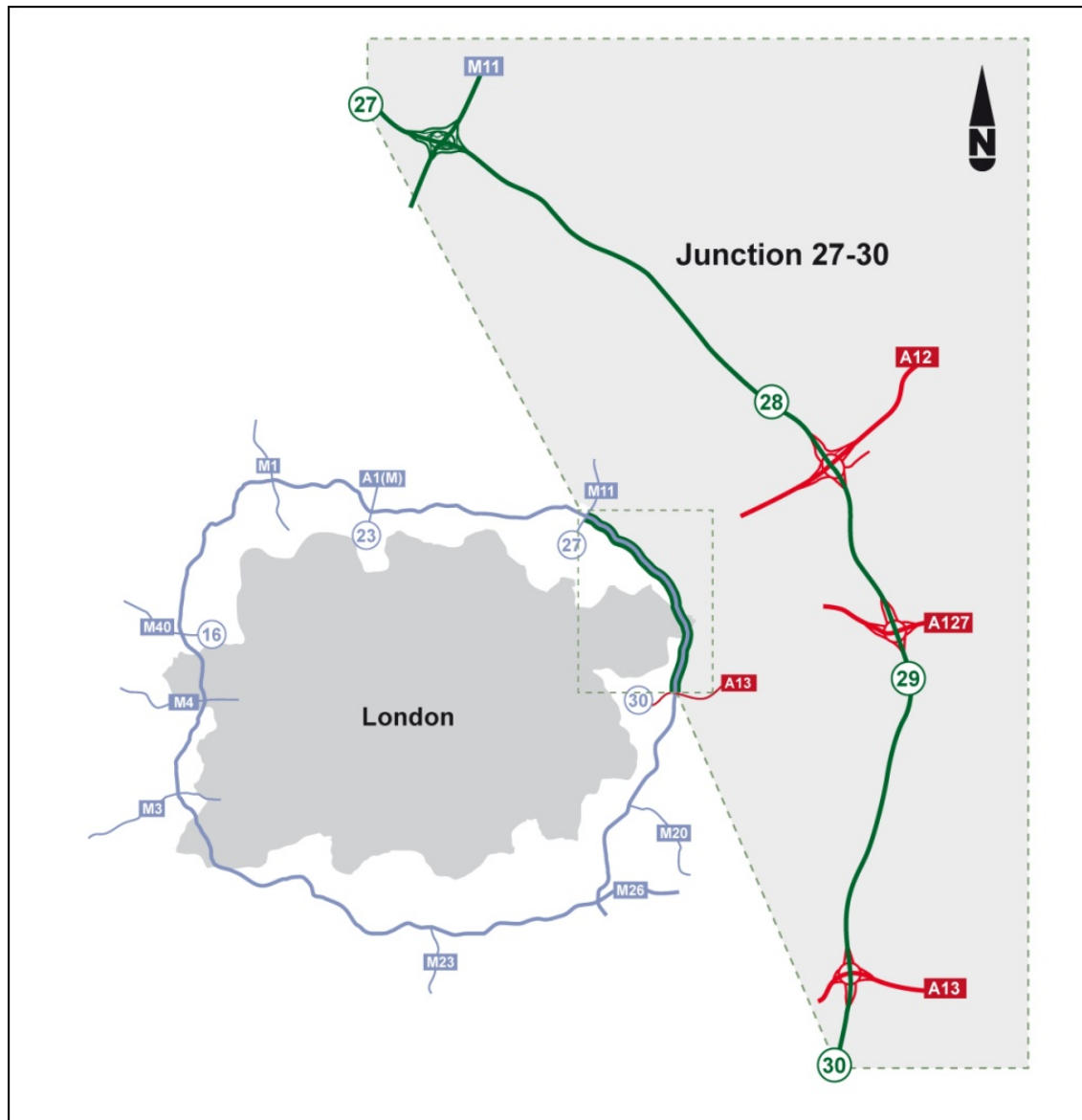


Figure 2A: Controlled Motorway Scheme Map

2.2 KEY FEATURES

The Controlled Motorway Scheme will include the following key features:

- Gantries at regular spacing with lane specific Advanced Motorway Indicator (AMI) signals;
- Variable Message Signs to provide the latest driver travel information and provide advance warning of incidents;
- Digital speed enforcement equipment to facilitate enforcement and manage compliance. The Highways Agency Digital Enforcement Camera System 2 (HADECS 2) will be used to enforce variable mandatory speed limits automatically;
- A system whereby in-road vehicle detector loops will detect queuing traffic and set warning signals, plus a network of CCTV cameras to monitor traffic conditions;
- Partnership with the Police;
- Provision of Highways Agency Traffic Officers to ensure effective incident management; and
- Incident response teams to remove obstructions, assist with traffic management and repair roadside infrastructure.

2.3 ENFORCEMENT

Obtaining an acceptable level of compliance with the speed limits displayed on overhead gantries is key to the successful and safe operation of the Controlled Motorway Scheme. Enforcement of variable mandatory speed limits 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 Camera System (HADECS) will be used to automatically enforce variable mandatory speed limits.

Relevant Questions:

Will the new variable mandatory speed limits be enforced, and how will this take place?

Yes, speed limits will be actively enforced to ensure compliance. The Highways Agency Digital Enforcement Camera System will provide automated detection. In addition, Police officers will have powers to enforce variable speed limits as a result of the regulations being put in place.

3 VARIABLE MANDATORY SPEED LIMITS

3.1 INTRODUCTION

The Controlled Motorway Scheme will be implemented on the M25 between Junctions 27 and 30.

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

During normal motorway operation, signals on gantries will be blank and the motorway will operate as a standard motorway.

When variable mandatory speed limits are in operation, the variable mandatory speed limit signals will be displayed on gantries on the M25 between Junctions 27 and 30. The signals are capable of displaying one of three mandatory settings, 40 mph, 50 mph or 60 mph. The speed selected will depend upon prevailing traffic conditions and is automatically calculated from sensors buried in the road surface. It is also possible to manually set mandatory speed limit signals to show a speed below 40 mph.

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

Some gantries will be fitted with HADECS 2 capable of providing evidence to secure prosecutions for speeding under the Road Traffic Act 1988.

The Operational Regimes to be implemented within the Controlled Motorway Scheme include:

- Normal operation
- Variable mandatory speed limits to manage congestion
- Incident management

3.2 NORMAL OPERATION

During normal motorway operation, signals on gantries will be 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 controlled motorway scheme operating on the M25 between Junctions 10 to 16. When any other operational regime is introduced signals will be displayed over the carriageway lanes.

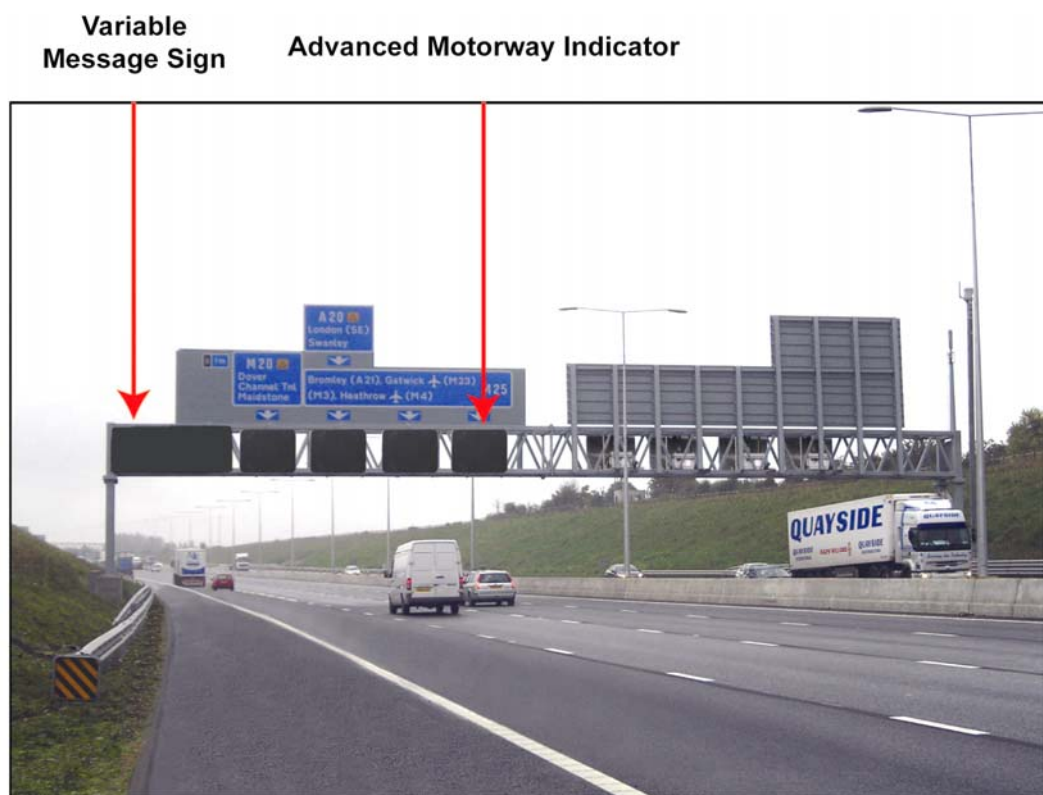


Figure 3A: The Controlled Motorway Scheme during Normal Operation

Relevant Questions:

When variable mandatory speed limit signs are left blank what speed limits apply?

When signs are left blank the motorway will revert to the National Speed Limit and therefore a maximum speed of 70mph will apply to all lanes.

3.3 VARIABLE MANDATORY SPEED LIMITS

When an Operational Regime is introduced, clear instructions will be given to drivers via the overhead signs and signals, as illustrated in Figure 3B.

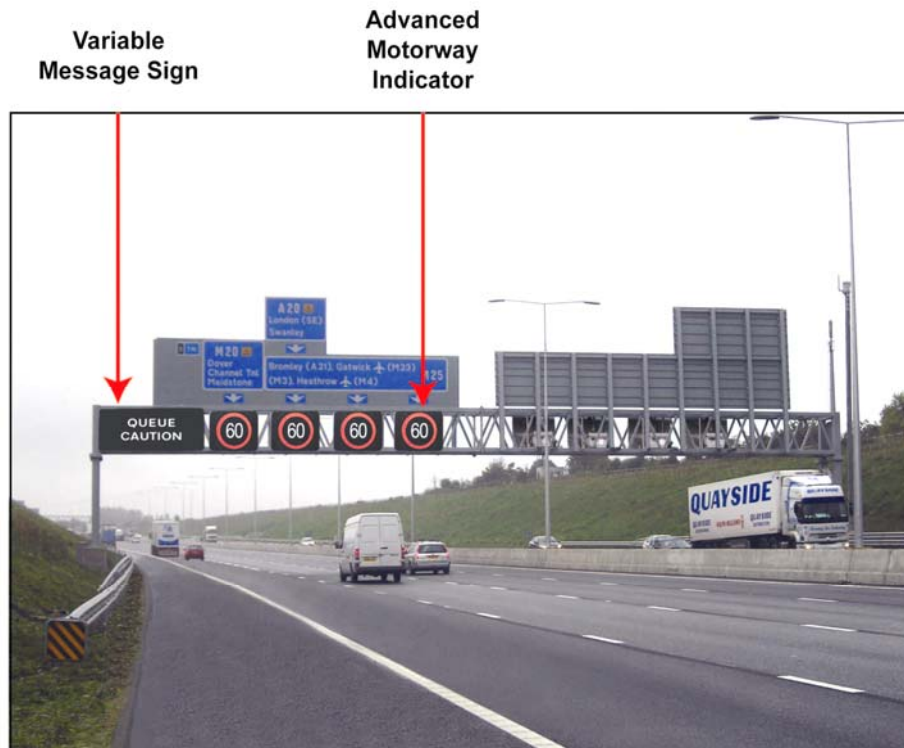


Figure 3B: Variable Mandatory Speed Limits

Variable mandatory speed limits will operate in a similar manner to the M25 Junctions 10 to 16 controlled motorway scheme, which has variable mandatory speed limits displayed above all the main carriageway lanes. The variable mandatory speed limit signal will be displayed on gantries on the M25 between Junctions 27 and 30. The speed selected will depend upon prevailing traffic conditions and is automatically calculated from sensors buried in the road surface.

The following points detail the operational regime for variable mandatory speed limits to manage congestion:

- During the display of variable mandatory speed limits, the signals mounted on overhead gantries above the main carriageway lanes (all lanes) will automatically display 60mph, 50mph or 40mph speed limits as appropriate to the road conditions. Lower speed limits such as 20mph or 30mph can be manually set by operators when considered necessary for the safety of the travelling public or those working within the carriageway.
- When queuing traffic is present, the message signs will display a “Queue Ahead” (or similar) message.

Relevant Questions:

What speed limits can be displayed?

When the variable mandatory speed limits are in operation the Advanced Motorway Indicators will normally display speed limits at 60mph, 50mph and 40mph. Blank signals indicate that the National Speed Limit of 70mph applies.

Who controls the signals?

There are two ways in which Variable Mandatory Speed Limits can be controlled:

- Direct control by trained Highways Agency Regional Control Centre (RCC) staff.
- Automatic speed setting when the in road vehicle detector loops indicate that the signs of developing congestion are in place.

3.4 INCIDENT MANAGEMENT

During incident management the signs and signals can be set in order to ensure the safety of road users and protect the scene of an incident and provide access to enable the Emergency Services to attend if required. Speed restrictions and lane availability will be indicated through the use of variable speed limits, lane divert arrows with flashing amber lanterns and Red X Stop signals which can be displayed over any of the main carriageway lanes. Figure 3C shows Red X stop signals and lane divert arrows in operation.

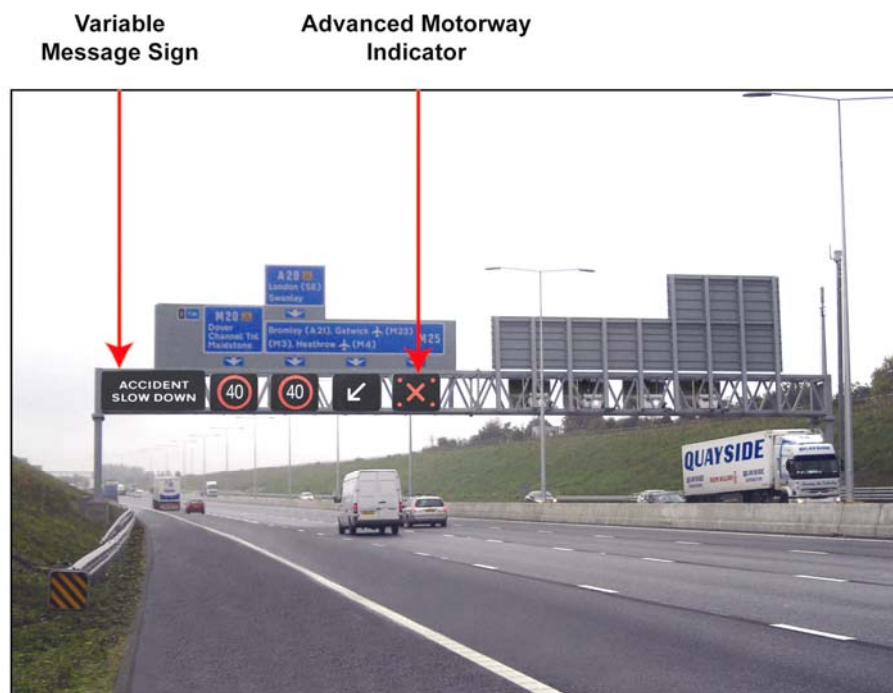


Figure 3C: Management of an incident within variable speed limits section

Relevant Questions:

Are Incident Management signals mandatory?

Red X signals are mandatory and enforceable. Lane arrow diversion signals are not mandatory, although they are normally followed by a Red X, and therefore it is advisory to change lanes once it is safe to do so in order to ensure compliance once the Red X is displayed.

4 LEGISLATIVE CHANGES

4.1 LEGISLATIVE CHANGES TO ALLOW FOR THE IMPLEMENTATION OF VARIABLE MANDATORY SPEED LIMITS

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 Controlled Motorway Scheme. The proposed regulations will restrict drivers from driving at a speed exceeding that displayed on the speed limit signs or the national speed limit where no other speed limit sign is displayed within the area covered by variable speed limits, as set out above.

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

Within the Controlled Motorway Scheme, it is an offence to use a motorway in contravention of regulations applying made under section 17(2) of the Road Traffic Regulation Act 1984.

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.

However, where a speed limit changes less than ten 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 'ten 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 ten 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 ten 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.

The regulations when made will apply in relation to the M25 Junctions 27 to 30. The roads governed by the regulations will be set out in the regulations.

APPENDIX A: IMPACT ASSESSMENT

Mike Penning MP
Parliamentary Under-Secretary of State for Transport
Department for Transport
Great Minster House
76 Marsham Street
London
SW1P 4DR

30 March 2012

Dear Minister,



As you will be aware, the Reducing Regulation Committee (RRC) has requested that the Regulatory Policy Committee (RPC) review, and comment on, all impact assessments supporting new regulatory proposals prior to their submission to the RRC. We understand that RPC opinions will accompany all requests for RRC clearance.

Please find attached the opinion of the RPC in respect of the impact assessment produced by your Department regarding 'M25 J27-30 Controlled Motorway'.

Yours sincerely,



Michael J S Gibbons OBE
Chairman

 Regulatory Policy Committee	OPINION	
Impact Assessment (IA)	M25 J27-30 Controlled Motorway	
Lead Department/Agency	Department for Transport	
Stage	Consultation	
Origin	Domestic	
Date submitted to RPC	20/03/2012	
RPC Opinion date and reference	30/03/2012	RPC11-DfT-0986(2)
Overall Assessment	GREEN	
<p>The IA is fit for purpose. The costs and benefits associated with introducing measures to improve journey time reliability on the M25 between Junction 27 and 30 have been adequately assessed.</p>		
<p>Identification of costs and benefits, and the impacts on small firms, public and third sector organisations, individuals and community groups and reflection of these in the choice of options</p> <p>The issues raised in our Opinion of 13/07/2011 have sufficiently addressed. In particular, the origin of the 15% reduction in existing accident rate attributable to Controlled Motorway schemes has been discussed.</p> <p><i>Net Present Value (NPV).</i> In calculating the NPV, the IA originally used the costs and benefits of transport projects valued at 2002 prices and discounted to 2002. In the current IA, <i>'these have been converted to 2010 prices..and discounted to a present value year of 2011.'</i> This appears reasonable.</p>		
<p>Have the necessary burden reductions required by One-in, One-out been identified and are they robust?</p> <p>The IA says the proposal is a regulatory measure that will be net beneficial to business (a 'zero IN'). This is consistent with the current One-in, One-out Methodology and provides a reasonable assessment of the likely impacts.</p>		
Signed 	Michael Gibbons, Chairman	

Title:
M25 J27-30 Controlled Motorway

IA No:

Lead department or agency:
Highways Agency

Other departments or agencies:
None

Impact Assessment (IA)

Date: 14/02/2012

Stage: Consultation

Source of intervention: Domestic

Type of measure: Secondary legislation

Contact for enquiries: 01306 878129

john.martin@highways.gsi.gov.uk

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, One-Out?	Measure qualifies as		
£48.8m	£6.9m	£-0.4m	Yes	Zero Net Cost		
<p>What is the problem under consideration? Why is government intervention necessary? The M25 between Junctions 27 and 30 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 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.</p>						
<p>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 effect is to reduce the variability in journey times caused by congestion. In particular, the intention is to reduce the likelihood of slow moving traffic and queues on the motorway, thereby making journey times less variable and more predictable or "reliable". A secondary effect is a reduction in accidents on the motorway.</p>						
<p>What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base) <i>The existing situation or "Do Nothing" is a dual four lane motorway (D4M). It should be noted that the road has only recently been widened to D4M from D3M and that the widening works are not yet complete.</i> Option 1: The preferred intervention is a system called Controlled Motorway. Controlled Motorway involves the use of variable speed limits of 60, 50 and 40 mph to reduce the incidence of slow moving and queuing traffic. A Variable Mandatory Speed Limit (VMSL) is therefore required as part of the Controlled Motorway system. Secondary legislation in the form of regulations made under Section 17 of the Road Traffic Regulation Act 1984 would be required in order to implement VMSL.</p>						
<p>Will the policy be reviewed? It will be reviewed. If applicable, set review date: 06/2016</p>						
Does implementation go beyond minimum EU			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	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions?			Traded: 0		Non-traded: -0.0001	

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: M25 J27-30 Controlled Motorway

FULL ECONOMIC ASSESSMENT

Price Base Year 2010	PV Base Year 2011	Time Period Years 30	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	High: N/A	Best Estimate: £48.8m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant)	Total Cost (Present Value)
Low	N/A	N/A	N/A
High	N/A	N/A	N/A
Best Estimate	£5.4m	£0.4m	£13.0m

Description and scale of key monetised costs by 'main affected groups'
 Breakdown of 'Total Cost' in 2010 prices, discounted to 2011 Present Value Year.
 Govt. (Public Accounts): Installation: £5.2m
 Govt. (Public Accounts): Enforcement, Operation and Maintenance: £4.7m
Govt. (Public Accounts): Renewal: £3.1m

Other key non-monetised costs by 'main affected groups'
 None

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant)	Total Benefit (Present Value)
Low	N/A	N/A	N/A
High	N/A	N/A	N/A
Best Estimate	£0.0m	£3.4m	£61.8m

Description and scale of key monetised benefits by 'main affected groups'
 Breakdown of 'Total Benefit' in 2010 prices, discounted to 2011 Present Value Year.
 Road Users (Economy): Improvement in Journey Time Reliability: £16.2m (including incident related delay)
Road Users (Society): Reduction in Accidents: £45.6m

Other key non-monetised benefits by 'main affected groups'
 None

Key assumptions/sensitivities/risks	Discount	3.5
The vast majority of the estimated benefits are based upon post opening evaluation of the M25 controlled motorway scheme currently operating between Junctions 10 and 16. This includes the effect of controlled motorway on both journey time variability and accident rates.		

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:	In scope of	Measure qualifies
Costs: £0m Benefits: £0.4m Net: -£0.4m	Yes	Zero net cost

Evidence Base

1. Problem under Consideration

The M25 is the London orbital motorway completed in 1986. The road is of vital importance to economic and social activity in the UK, particularly in the south-east. It is estimated that one million vehicles per day now use the road.

The section of the M25 between Junctions 27-30 lies in the north-east quadrant and connects with the M11 at Junction 27 and the A13 at Junction 30. The road was built as a dual three lane carriageway (D3M) and has become increasingly congested, resulting in queues and delays at peak times and during the inter-peak period. Two-way daily traffic flows range from 120,000 vehicles between Junctions 27 to 28 and 115,000 vehicles between Junctions 29 and 30. These flow levels are at least 30% higher than the Congestion Reference Flow (CRF) of around 90,000 vehicles per day for a D3M carriageway. The CRF represents the daily flow level at which a road is likely to be congested during peak hours. The observed peak hour congestion is consistent with this definition.

2. Rationale for Intervention

The Highways Agency is in the process of widening the section of the M25 motorway between Junctions 27 and 30 to 4 lanes in each direction. Whilst the widening will reduce the frequency of the congestion which presently occurs, the road will remain very heavily trafficked in relation to the available traffic capacity. As such, the carriageways in both directions will still be prone to breakdowns in traffic flow, particularly as traffic continues to grow in the future.

A breakdown in traffic flow is where traffic slows unexpectedly or stops on the motorway. Because these events cause delays and occur randomly, it can be difficult for road users to accurately predict the time required to negotiate the motorway and hence the time required for a trip. The result is that road users can either be late, or arrive unnecessarily early (thereby not using their time to best advantage). These effects are detrimental to business productivity and the economic and social activities of individuals.

If the predictability or “reliability” of journey times is to be improved beyond that which would be achieved from the widening alone, then some form of intervention is required. Furthermore, 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 proposed 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 Controlled Motorway scheme will contribute to this by improving journey time reliability on the M25 between Junctions 27 and 30. In particular, the intention is to make journey times more predictable or "reliable" than can be achieved through the current widening alone. A secondary objective is to reduce accidents on the motorway. Accidents have a cost to business and society in terms of personal injury and damage to property etc, but also in relation to the congestion they cause and the effect that this has on journey time reliability.

4. Description of Options

4.1 Do Nothing Baseline ie Existing

The Do-Nothing Baseline, or existing situation, is a dual four lane carriageway to motorway standard (D4M) with the MIDAS system (Motorway Incident Detection and Automatic Settings). MIDAS is a system comprising of 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): Controlled 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 the M25 J27-30, 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.

In the case of the M25 J27-30, the preferred option is widening rather than MM. The widening element of the scheme has in fact been largely completed and the proposed introduction of CM technology is required to complete the scheme. The addition of CM is intended to secure a greater degree of improvement to journey time reliability than would be obtained from the widening alone.

The operation of the MIDAS component of CM is described above in paragraph 4.1. Like MIDAS, CM 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. Indeed, the evaluation of existing CM operation elsewhere on the M25 has shown that the net effect on average journey times is neutral, but that 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.

It should be noted that CM is already installed on the section of the M25 between Junctions 10 and 16. There are also proposals for its introduction on the widened sections between Junctions 2 - 3, 7 - 10 and 16 - 23. On other sections of the M25 a Managed Motorway system is proposed for introduction by 2015. These systems will thus provide coverage of most of the M25 should all the proposals be implemented.

A secondary benefit of CM 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 CM is believed to be the result of imposing lower mandatory speed limits and requiring drivers to stay in lane.

In order for CM 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 and secondary legislation is required to allow mandatory variable speed limits to operate.

It should be noted that the mandatory speed limit signs used as part of CM 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 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) will be used to automatically monitor compliance with VMSL.

5. *Details of Costs and Benefits*

5.1 Do Nothing Baseline ie Existing

The “Do-Nothing” represents the baseline against which the proposed Controlled Motorway is assessed.

5.2 Option 1 (Preferred): Controlled Motorway

The impacts of the Controlled 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 Controlled 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. For Controlled Motorway schemes, this guidance is contained in the Highways Agency's Interim Advice Note (IAN) 'Appraisal of Technology Schemes'. In particular, the IAN provides supplementary appraisal guidance in relation to how the various impacts identified in WebTAG should be assessed for different types of traffic technology schemes, including CCTV, MIDAS, CM or combinations thereof.

With regard to the nature of the traffic effects of CM on the scheme section, it was mentioned in the description of the preferred option that CM does not change average journey times. This is because traffic flows are not changed by CM and the increases and decreases in vehicle speeds arising from the use of VMSL tend to cancel each other out. The traffic effects are therefore confined to the effect of VMSL on reducing the variability of average speeds and hence the variability of journey times. In addition, there is a secondary impact of a reduction in accidents which in turn reduces the delays and journey time variability associated with such incidents.

Because CM does not affect average journey times and hence traffic demand or routing, its introduction on an existing unmodified carriageway does not require the development of a traffic model to quantify these effects. In this case however, CM is being introduced in conjunction with widening of the carriageway. Widening does have such effects and these were quantified in terms of predicted traffic flows using the widening scheme traffic model. The predicted traffic flows output from the model were then input to the appraisal methodology for the CM scheme as required by the HA IAN Appraisal of Technology Schemes. The appraisal methodology for each of the various impacts is described further below in the sub sections detailing the costs and benefits of the proposed scheme.

The quantitative assessment of the journey time reliability and accident impacts shows that the magnitude of the impacts is relatively insensitive to the potential range of variation in forecast traffic flows. Nevertheless, it is worth summarising what the M25

widening scheme traffic model is and how it produces forecast traffic flows. Essentially, the traffic 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 a 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.

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 traffic flows and hence future year benefits.

In the case of CM, the IAN Appraisal of Technology Schemes contains look up tables of the benefits of CM schemes over their 30 year life for different levels of daily traffic flow in opening year. It is evident from these values that the journey time reliability and accident benefits are unlikely to change by more than 10%, even if future traffic growth were significantly higher or lower than that which is forecast using the National Transport Model assumptions.

Whilst the benefits of CM show little sensitivity to traffic growth forecasts, this is not the case for MM and other road schemes which increase the available road space. For this reason, it is now a requirement of WebTAG that different scenarios of future traffic growth are modelled, in addition to the most likely or “Core Scenario”. However, at the time the M25 modelling work was undertaken, there was no accepted approach for the treatment of uncertainty in relation to forecasting future traffic growth. As a result, it was only possible to produce a most likely or Core Scenario forecast and it is these flows which have then been used to produce a “Best Estimate” of the benefits. Results for the Lowest and Highest Benefits Scenarios are not therefore available, though these would be little different to the Core Scenario given the insensitivity of the benefits to significant difference in traffic flow levels. Certainly the difference would not justify the time and expense involved in producing alternative forecasting scenarios and economic assessments.

DfT appraisals following WebTAG guidance result in a single “Best Estimate” of construction costs which includes a risk allowance based upon a quantified risk assessment. The estimate and the risk assessment is refined as the scheme progresses towards implementation and design work allows more accurate quantification of the risks

and 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.

It should be noted that the standard appraisal period for transport schemes is 60 years. However, in the case of CM schemes, the useful life of the assets is 30 years and so 30 years is the assumed appraisal period.

WebTAG and the HA's IAN require that the costs and benefits of transport projects are valued at 2002 prices and discounted to 2002. However, for the purpose of this 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.

Monetised Costs

All Controlled Motorway schemes have the following types of financial 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 after 15 years.

In terms of non-financial costs, Controlled Motorway schemes are appraised in terms of a range of potential impacts as set out in WebTAG and the HA's IAN Appraisal of Technology Schemes. As mentioned above, the impacts which must be considered come under the three main headings of Economy, Environment and Society which are each then subdivided into a number of sub-impacts. Those sub-impacts which are relevant to Controlled Motorway schemes are limited to journey times, journey time reliability and accidents.

The relevant sub-impacts have been assessed and the proposed scheme has no non-financial costs to add to the financial costs of installation etc described above. Normally, a CM scheme would have a cost to Transport Economic Efficiency (journey times and vehicle operating costs) during construction. In this case however, the CM equipment will be installed as part of the motorway widening project. As such, there are no additional roadworks required.

Transition: Installation Costs

The overall installation cost for Controlled Motorways on the M25 J27 to J30 is **£5.4m** (2010 Constant Market Prices – Undiscounted). This includes Preparation, Supervision and Works costs. Preparation costs cover 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.

The current capital cost of installing the Controlled 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. The current estimate was prepared at Works Commitment stage and is the final most accurate estimate produced.

Recurring: Enforcement Costs

Enforcement costs have been derived using the Highways Agency Managed Motorways Operational Cost Model spreadsheet.

The average annual enforcement cost of **£0.1m** over 30 years (2010 Constant Market Prices – Undiscounted), includes costs paid by the HA to cover the costs incurred by the Home Office in processing fixed penalty notices or prosecuting offenders.

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 and operating costs are **£0.1m** over 30 years (2010 Constant Market Prices – Undiscounted). These include the costs associated with the maintenance of gantries, signs, loops and cabinets, plus specialist IT hardware and software.

Recurring: Renewal Costs

Renewal costs have been derived using the Highways Agency Managed Motorways Operational Cost Model spreadsheet.

The average annual renewal cost of **£0.2m** over 30 years (2010 Constant Market Prices – Undiscounted), is based on replacing all electrical equipment at expiry of a 15 year operational life.

Non-Monetised Costs

The proposed scheme has no unmonetised costs.

Monetised Benefits

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

- 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;
- Reducing accidents 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.

Recurring: Journey Time Reliability Benefit

The average annual journey time reliability benefit is **£0.9m** over 30 years (2010 Constant Market Prices – Undiscounted). This benefit comprises of the following elements:

- Reductions in Journey Time Variability: £0.8m
- Reductions in Incident Related Delay: £0.1m

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 reduction in incident related delay is the result of fewer accidents.

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 30 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. However, 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 Controlled Motorway schemes.

Recurring: Road Safety Benefit

The average annual road safety benefit is **£2.5m** over 30 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 Controlled Motorway system.

It is assumed that Controlled 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 road safety benefits is extracted from the traffic model in the form of the physical characteristics of the scheme section (eg link lengths and carriageway standard) and the daily traffic flows on links and junctions within it. The traffic flow information is extracted for various future modelled years, but does not differ between the with and without scheme scenarios. In addition, the numbers of existing accidents at links and junctions within the scheme section are obtained from police records and accident rates are calculated for the with and without scheme scenarios (accidents per million vehicle kilometres travelled). All the data is then entered into a DfT sponsored computer program called COSt Benefit Analysis (COBA) which calculates the number of accidents on the scheme section for the with and without scheme scenarios in each year of the 30 year appraisal period. COBA then attaches a monetary valuation to accidents (the DfT value of preventing an accident) and sums the total accident costs on the scheme section. The difference in accident costs between the with and without scheme scenarios is the accident benefit of the scheme.

WebTAG values of accidents vary by road and junction type and increase over time in line with forecast growth in GDP. However, the value of a motorway accident in 2011 with the average number and severity of casualties is £91,885 in 2010 market prices. More details of the values and how they are calculated can be found at [Department for Transport - Transport Analysis Guidance - WebTAG - Documents - Guidance documents - expert](#)

Non-Monetised Benefits

The proposed scheme has no unmonetised 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

The scheme is being undertaken as part of the M25 Design Build Finance and Operate (DBFO) contract. This is a Private Finance Initiative and any risk in terms of the cost of building the scheme as specified is being borne by the DBFO contractor.

In terms of the magnitude of the benefits, these are primarily dependent upon the results of the post opening project evaluation of the existing M25 Controlled Motorway scheme (Junctions 10-16). The degree of success achieved therefore depends upon the extent to which the results are repeated on this adjoining section of road.

An implicit assumption is that road based travel will continue to have the same level of importance for the full 30 years of the appraisal period. Whilst this seems likely, there is much less certainty as to whether Controlled 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 which 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 and is therefore in scope for purposes of OIOO.

The proposed controlled motorway imposes no direct costs on business. Its net impact on business is to increase business productivity by improving journey time reliability and road safety for business users of the proposed scheme. It is therefore an “In” regulation with “Zero net cost” to business.

The computer programs INCA and COBA do not disaggregate the journey time reliability and accident benefits between business and non-business users. However, an estimate of the proportion of the benefits received by business users is 45%. This has been calculated by assuming a national average mix of vehicle types and trip purposes.

The total benefits to business users over 30 years are as follows (in 2009 market prices, discounted to 2010 at 3.5% for years 0-30 and 3% thereafter). It should be noted that only the journey time reliability benefits are considered to be direct benefits to business. The accident benefits are considered to be indirect (second round) benefits and are not included in either the Business NPV on Page 1 of the IA, or as benefits within the Business Assessment on Page 2.

- Journey Time Reliability £6.9m
- Accidents £19.3m

The equivalent annual values are as follows;

- Journey Time Reliability £0.4m
- Accidents £1.1m

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 impact of the proposed scheme upon the justice system and equalities issues are described below.

9.1 Justice System

In Controlled 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. The complete process impacts on the Highways Agency, the Police, the Crown Prosecution Service (CPS) and HM Courts Service. However, experience has shown that a relatively small number of offenders will have to be processed through the Magistrates' Courts.

This has been dealt with by an agreement between the four parties (Managed Motorway National Enforcement Strategic Agreement, December 2009). The intention of the agreement is to ensure that enforcement of controlled motorway will have minimal impact on the normal procedures of the Police, CPS and Courts. To maximise efficiency, ensure consistency and minimise financial impact it is proposed to identify key Police Forces, CPS offices and Magistrates Courts in each of the seven Highways Agency Regions and to process enforcement cases centrally on a regional basis.

Offences captured by the HADECS system are processed with financial support from the Highways Agency by virtue of Section 38 of the Vehicle (Crime) Act 2001. This enables the Secretary of State to fund Police and others to undertake the enforcement of variable speed limits.

9.2 Equalities

The Controlled Motorway 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 controlled 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 Controlled Motorway between Junctions 27-30 of the M25. This section of road is currently being widened from dual three to dual four lanes in both directions. The controlled motorway is intended to be implemented as part of the widening works.

The purpose of a controlled motorway 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”.

In order for controlled 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 and this in turn requires secondary legislation.

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) will be used to automatically monitor VMSL.

A summary of the costs and benefits of the proposed scheme is provided in Table 1 below, The costs and benefits cover a 30 year appraisal period from 2012. In accordance with the Treasury Green Book, the discount rate is 3.5% per year for 30 years from 2011.

Table 1 – Summary of 30 year Costs and Benefits (2010 Market Prices, Discounted to 2011)

Type of Cost (A)	Cost (£m)	Type of Benefit (B)	Benefit (£m)
Installation	5.2	Journey Time Reliability	14.9
Enforcement	0.9	Incident Related Delay	1.3
Operation and Maintenance	3.8	Accidents	45.6
Renewal	3.1		
ALL (TOTAL A)	£13.0	ALL (TOTAL B)	£61.8

Net Present Value (B-A)	£48.8m
Benefit Cost Ratio (B/A)	4.8

10.2 Implementation Plan

The optimum time for installing Controlled Motorway is now, whilst the widening scheme is under construction. To implement it at a later date as a separate scheme would cost significantly more overall. This is because much of the equipment is a substitute for MIDAS equipment rather than additional to the MIDAS equipment, which would thus have to be abandoned (and the associated labour costs written off). There are also cost savings in employing a contractor to undertake the work in conjunction with the widening scheme, particularly in relation to traffic management costs. There will also be fewer roadworks and hence less disruption to motorway users.

The widening of the motorway is already under construction. The intention is that the works to install controlled motorway will be integrated into the works programme and completed in 2012.

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 accidents, speeds, traffic flows and journey times
- Assessment against scheme objectives;
- 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 is the widened carriageway without CM. The widening will be completed some months prior to the introduction of CM, thereby allowing the collection of "before" data.

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 accident reductions, journey time reliability improvements 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

CONTROLLED MOTORWAYS - M25 Junctions 27 to 30

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

John Martin
Highways Agency
Federated House
London Road
Dorking
Surrey
RH4 1SZ

Or alternatively you can respond to the consultation by email:

M25Widening@highways.gsi.gov.uk

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):
<p>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:</p>	
<p>If you would like your response or personal details to be treated confidentially please explain why:</p>	

PART 2 - Your comments

1. Do you have any comments on the proposal to introduce variable mandatory speed limits on the M25 between Junctions 27 to 30?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>If yes, please give your comments:</p>		

2. If implemented, would you have any <u>additional concerns</u> in regards to the introduction of variable mandatory speed limits and their enforcement?	Yes <input type="checkbox"/>	NO <input type="checkbox"/>
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APPENDIX C: LIST OF CONSULTEES

	Company Name	Recipient	Address	Email Address
	ACPO	President	1st Floor, 10 Victoria Street, London, SW1H 0NN	enquiries@acro.pnn.police.uk
	ADEPT	President	Shropshire Council, Shirehall, Abbey Foregate, Shrewsbury, SY2 6ND	adept@shropshire.gov.uk
	AIRSO	Secretary	68 The Boulevard, Worthing, BN13 1LA	info@airso.org.uk
	Arriva Southern Counties	Managing Director	FREEPOST ANG 7624, Luton, Bedfordshire, LU4 8BR	enquiries@arriva.co.uk
	Association of British Drivers	Chief Executive	P.O. Box 2228, Kenley, Surrey, CR8 5ZT	brian.gregory@abd.org.uk
	Association of British Insurers	Director General	51 Gresham Street, London, EC2V 7HQ	otto.thoresen@abi.org.uk
	Association of Vehicle Recovery Operators	President	AVRO House, 1 Bath Street, Rugby, CV21 3JF	sara@avrouk.com

	Company Name	Recipient	Address	Email Address
	Automobile Association	Chief Executive	Fanum House UG, Basing View, Basingstoke, Hampshire, RG21 4EA	publicaffairs@theaa.com
	Brake	Chief Executive	PO Box 548, Huddersfield HD1 2XZ, United Kingdom	admin@brake.org.uk
	Brentwood Borough Council	Leader	Town Hall, Ingrave Road, Brentwood, Essex, CM15 8AY	telltheleader@brentwood.gov.uk
	Britannia Rescue	Chief Executive	Freepost RSJA-XLCX-BLCE, Folly Hall Mills, St Thomas Road, Huddersfield, HD1 3LT	member.services@britanniarescue.com
	British Insurance Brokers' Association	Chief Executive	8th Floor, John Stow House, 18 Bevis Marks, London, EC3A 7JB,	enquiries@biba.org.uk
	British Motorcyclists Federation	Government Relations Executive	3 Oswin Road, Brailsford Industrial Estate, Braunstone, Leicester, LE3 1HR	chris.hodder@bmf.co.uk
	Campaign for Better Transport	Chief Executive	16 Waterside, 44-48 Wharf Road, London N1 7UX	stephen.ioseph@bettertransport.org.uk

	Company Name	Recipient	Address	Email Address
	Campaign to Protect Rural England	President	National Office, 5-11 Lavington Street, London, SE1 0NZ	info@cpre.org.uk
	CBI South East	Regional Director	Tubs Hill House, London Road, Sevenoaks, Kent, TN13 1BL	webteam@cbi.org.uk
	CBI Thames Valley	Regional Director	First Floor, Victoria House, 18-22 Albert Street, Fleet, Hampshire, GU51 3RJ	heidi.flynn@cbi.org.uk
	Chartered Institute of Logistics and Transport	Chief Executive	Earlstrees Court, Earlstrees Road, Corby, Northants, NN17 4AX	steve.agg@ciltuk.org.uk
	Chartered Institution of Highways and Transportation	Chief Executive	119 Britannia Walk, London, N1 7JE	Nichole.Sansome@ciht.org.uk
	Chief Fire Officers Association	South East Regional Secretary	9-11 Pebble Close, Tamworth, Staffordshire, B77 4RD	dave.curry@hantsfire.gov.uk
	Civil Engineering Contractors Association	Executive Director	1 Birdcage Walk, London, SW1H 9JJ	lauraellis@ceca.co.uk

	Company Name	Recipient	Address	Email Address
	Confederation of British Industry	President	Centre Point, 103 New Oxford Street, London, WC1A 1DU	webteam@cbi.org.uk
	Confederation of Passenger Transport UK	Chief Executive	Drury House, 34-43 Russell Street, London, WC2B 5HA	simonp@cpt-uk.org
	Connect Plus	Chief Executive	Connect Plus House, St Albans Road, South Mimms, Potters Bar, Hertfordshire, EN6 3NP	enquiries@connectplusm25.co.uk
	Dartford Borough Council	Managing Director	Civic Centre, Home Gardens, Dartford, Kent, DA1 1DR	customer.services@dartford.gov.uk
	Defensive Driver Training Ltd	Chief Executive	Tudor House, 2 Worcester St, Stourbridge, West Midlands, DY8 1AN	admin@ddtgroup.com
	Disabled Motoring UK	Chief Executive	National Headquarters, Ashwellthorpe, Norwich, NR16 1EX	info@disabledmotoring.org
	Disabled Persons Transport Advisory Committee	Secretariat	2/17 Great Minster House, 33 Horseferry Road, London, SW1P 4DR	dptac@dft.gsi.gov.uk

	Company Name	Recipient	Address	Email Address
	Driving Standards Agency	Chief Executive	The Axis Building, 112 Upper Parliament Street, Nottingham, NG1 6LP	customer.services@dsa.gsi.gov.uk
	East of England Ambulance Service NHS Trust	Chief Executive	East of England Ambulance Headquarters, Cambourne Building 1020, Cambourne Business Park, Cambourne, Cambs, CB23 6EB	communications@eastamb.nhs.uk
	Highways Agency East Regional Control Centre	Regional Control Centre Supervisor	St. Albans Road, South Mimms, Potters Bar, Hertfordshire, EN6 2PN	ha_info@highways.gsi.gov.uk
	Epping Forest District Council	Chairman	Civic Offices, High Street, Epping, Essex CM16 4BZ	cllrbrrianrolfe@hotmail.co.uk
	Epping Town Council	Town Mayor	Epping Hall, St Johns Road, Epping, Essex CM16 5JU	info@eppingtowncouncil.gov.uk

	Company Name	Recipient	Address	Email Address
	Essex Chamber of Commerce	Chief Executive	Denise Rossiter Chief Executive Essex Chambers of Commerce Second Floor Viscount House London Southend Airport SOUTHEND-ON-SEA SS2 6YF	deniserossiter@essexchambers.co.uk Tel: 01702 433410 Mobile 07764 223272
	Essex Constabulary	Chief Constable	MSD, Holts Lane, Waltham Road, Boreham, Essex, CM3 3BG	Jim.Barker-McCardle@essex.pnn.police.uk
	Essex County Council	Chief Executive	County Hall, Market Road, Chelmsford, Chelmsford, CM1 1QH	joanna.killian@essex.gov.uk

	Company Name	Recipient	Address	Email Address
	Essex County Fire and Rescue	Chief Officer	Operations & Resilience Department, Service Headquarters, Kelvedon Park, Rivenhall, Witham, Essex, CM8 3HB	webmaster@essex-fire.gov.uk
	Federation of Small Businesses	Chairman	Sir Frank Whittle Way, Blackpool, Lancashire, FY4 2FE	customerservices@fsb.org.uk
	FirstGroup Plc	Group Corporate Communications Director	FirstGroup plc 50 Eastbourne Terrace Paddington London W2 6LG	Rachel.Borthwick@firstgroup.com
	Freight Transport Association	Chief Executive	Hermes House, St John's Road, Tunbridge Wells, Kent TN4 9UZ	press.office@fta.co.uk
	Friends of the Earth	Chief Executive	26-28 Underwood Street, London, N1 7JQ	info@foe.co.uk tel: 020 7490 1555
	Gatwick Airport Limited	Chief Operating Officer	5th Floor Destinations Place, Gatwick Airport, Gatwick, West Sussex, RH6 ONP	stewart.wingate@gatwickairport.com

	Company Name	Recipient	Address	Email Address
	Go-Ahead Group plc	Chief Executive	6th Floor, 1 Warwick Row, London SW1E 5ER	carolyn.sephton@go-ahead.com
	Green Flag	Chief Executive	The Wharf, Neville Street, Leeds, LS1 4AZ	member-queries@greenflag.com
	HA National Vehicle Recovery Manager	Chief Executive	FMG Support, FMG House, St Andrews Road, Huddersfield, HD1 6NA	info@fmq.co.uk
	Health and Safety Executive	Chief Executive	Redgrave Court, Merton Rd, Bootle, Merseyside, L20 7HS	formsadmin.manchester@hse.gsi.gov.uk
	Heathrow Airport Limited	Chief Operating Officer	The Compass Centre, Nelson Road, Hounslow, Middlesex, TW6 2GW	heathrowmediacentre@baa.com
	Her Majesty's Courts and Tribunals Service	Chief Executive	Ministry of Justice, 102 Petty France, London, SW1H 9AJ	enquiries@offsol.gsi.gov.uk
	Ikea Lakeside	Store Manager	Lakeside Retail Park, Heron Way, West Thurrock, Essex, RM20 3WJ	media.lounge.uk@ikea.com

	Company Name	Recipient	Address	Email Address
	Institute of Advanced Motorists	The Chair	510 Chiswick High St, London, W4 5RG	press.office@iam.org.uk
	Institute of Road Transport Engineers	President	Society of Operations Engineers, 22 Greencoat Place, London, SW1P 1PR	soe@soe.org.uk
	Institute of Vehicle Recovery Operators	Chief Executive	Top Floor Bignell House, Horton Road, West Drayton, Middlesex, UB7 8EJ	sara@avrouk.com
	Institution of Civil Engineers	President	1 Great George Street, Westminster, London, SW1P 3AA	communications@ice.org.uk
	IRSO Head Office	Chief Executive	12 Haddon Close, Wellingborough, Northamptonshire, NN8 5ZB	irso@live.co.uk
	Lakeside Shopping Centre	General Manager	Lakeside Centre Management, Capital Shopping Centres PLC, 40 Broadway, London, SW1H 0BU	lakeside-information@capshop.co.uk

	Company Name	Recipient	Address	Email Address
	Local Government Association	Chief Executive	Local Government House, Smith Square, London, SW1P 3HZ	info@local.gov.uk
	London Ambulance Service	Chief Executive	220 Waterloo Road, London, SE1 8SD	cia@londonambulance.nhs.uk
	London Chamber of Commerce & Industry	Chief Executive	33 Queen Street, London, EC4R 1AP	lc@londonchamber.co.uk
	London Fire and Emergency Planning Authority	Chief Fire Officer	169 Union Street, London, SE1 0LL	info@london-fire.gov.uk
	London Safety Camera Partnership	Chief Executive	Windsor House, 42-50 Victoria Street, London, SW1H 0TL	postmaster@cityoflondon.police.uk
	London Traffic Control Centre (LTCC) TfL	Director	Windsor House, 42-50 Victoria Street, London, SW1H 0TL	londonstreets@tfl.gov.uk
	Loughton Town Council	Town Mayor	1 Buckingham Court, Rectory Lane, Loughton, Essex, IG10 2QZ	contact@loughton-tc.gov.uk

	Company Name	Recipient	Address	Email Address
	Metropolitan Police Service	Commissioner	New Scotland Yard, Broadway, London, SW1H 0BG	trafficingquiryoffice@met.police.uk tel 101 option 2 option 1
	Ministry of Defence	Chief of Defence Material	CDM DE&S MOD Abbeywood BRISTOL BS34 8JH	descdm-outeroffice@mod.uk
	Ministry of Defence Police	Chief Constable	Building 66, MDP Wethersfield, Braintree, Essex, CM7 4AZ (Donna Browne Parliamentary Business MDPGA Secretariat)	donna.browne800@mdpga.mod.uk tel: military 94667 4206 tel: civilian 01371 854206
	Mondial Assistance	Chief Executive	Mondial House, 102 George Street, Croydon, Surrey, CR9 1AJ (Facilities Manager: Judith Kane)	Judith_kane@allianz-globalassistance.co.uk tel: 020 86812525

	Company Name	Recipient	Address	Email Address
	Moto Services	Site Manager	Arterial Road, West Thurrock, Grays, RM16 3BG (Tim Moss: CEO)	Tim.moss@moto-way.co.uk tel: 01525 873933
	Motorcycle Industry Trainers Association	Chief Executive	1 Rye Hill Office Park, Birmingham Road, Allesley, Coventry, CV5 9AB (Secretary: Jenny Luckman)	j.luckman@mcia.co.uk tel: 024 76 408 000
	Motorcycle Action Group	National Chair	Central Office, P.O. Box 750, Warwick, CV34 9FU	central-office@mag-uk.org
	National Express Ltd	Director of Policy and External Affairs	National Express House, Mill Lane, Digbeth, Birmingham B5 6DD	anthony.vigor@nationalexpress.com
	National Traffic Operations Centre	Head of National Traffic Operations Centre	Quinton Business Park, Birmingham, B32	ha_info@highways.gsi.gov.uk

	Company Name	Recipient	Address	Email Address
	National Trust South East Regional Office	Area Manager	Polesden Lacey, Dorking, Surrey, RH5 6BD	lse.customerenquiries@nationaltrust.org.uk
	National Tyre Distributors Association	Chief Executive	8 Temple Square, Aylesbury, Buckinghamshire, HP20 2QH	info@ntda.co.uk
	Parliamentary Advisory Council for Transport Safety	The Chair	3rd Floor Clutha House, 10 Storey's Gate, London, SW1P 3AY	Naomi.Baster@pacts.org.uk
	Peek Mouchel, Eastern TechMAC	General Manager	Unit 5, Handley Page Way, Old Parkbury Lane, Colney Street, St Albans, AL2 2DQ	info@peekmouchel.com
	Police Federation of England and Wales	The Chair	Federation House, Highbury Drive, Leatherhead, Surrey, KT22 7UY	gensec@polfed.org
	Police Superintendents' Association	President	67a Reading Road, Pangbourne, Berkshire, RG8 7JD	enquiries@policesupers.com
	RAC Foundation	The Chair	89-91 Pall Mall, London, SW1Y 5HS	info@racfoundation.org

	Company Name	Recipient	Address	Email Address
	RAC Motoring Services	PR & Communications Manager	RAC House, Brockhurst Crescent, Walsall, WS5 4AW	pete.williams@rac.co.uk
	RHQ RMP	Regimental Secretary	Defence Police College Policing and Guarding, Postal Point 38, Southwick Park, Fareham, Hants, PO17 6EJ	regsec_rhqrm@btconnect.com
	Road Haulage Association	Chief Executive	The Old Forge, South Rd, Weybridge, Surrey, KT13 9DZ	haulersshop@rha.uk.net
	Road Rescue & Recovery Association	President	Hubberts Bridge Rd, Kirton Holme, Boston, Lincolnshire, PE20 1TW	enquiries@rrra-recovery.co.uk
	RoSPA	Chief Executive	RoSPA House, 28 Calthorpe Road, Edgbaston, Birmingham, B15 1RP	help@rospa.com
	Serco Integrated Transport	Manager	Serco Integrated Transport – Hook, Serco House, 11 Bartley Wood Business Park, Hook, Hampshire, United Kingdom, RG27 9XB	generalenquiries@serco.com

	Company Name	Recipient	Address	Email Address
	South Central Ambulance Service NHS Foundation Trust	Chief Executive	Units 7 And 8 Talisman Business Centre, Talisman Road, Bicester, Oxfordshire, OX26 6HR	pals@scas.nhs.uk
	South East Regional Control Centre	Regional Control Centre Supervisor	Foster Down, Godstone, Surrey, RH9 8PQ	james.finch@kent.fire-uk.org
	South Mimms Services	Manager	The Welcome Break, Welcome Break Service Station, Bignell's Corner, South Mimms, Potters Bar, Hertfordshire, EN6 3QQ	Mimms.enquiry@welcomebreak.co.uk
	Stagecoach Group	Chief Executive	10 Dunkeld Road, Perth PH1 5TW	media@stagecoachgroup.com
	Stansted Airport	Managing Director	Enterprise House, Bassingbourn Road, Essex, CM24 1QW	stanstedmediacentre@baa.com
	The Ambulance Service Association	Chief Executive	Friars House, 157-168 Blackfriars Rd, London, SE1 8EU	
	The British School of Motoring	Managing Director	Fanum House, Basing View, Basingstoke, Hampshire RG21 4EA	BSMCustomerCare@bsm.co.uk

	Company Name	Recipient	Address	Email Address
	The Magistrates Association	Executive Director	28 Fitzroy Square, London W1T 6DD	information@magistrates-association.org.uk
	The Wildlife Trusts	Chief Executive	The Kiln, Waterside, Mather Road, Newark, Nottinghamshire, NG24 1WT	enquiry@wildlifetrusts.org
	Thurrock Council	Chief Executive	Civic Offices, New Road, Grays, Essex, RM17 6SL	gfarrant@thurrock.gov.uk
	Trafficmaster Plc	Chief Executive	Martell House, University Way, Cranfield, Bedfordshire, MK43 0TR	customerservices@trafficmaster.co.uk
	VOSA	Chief Executive	Berkeley House, Croydon Street, Bristol, BS5 0DA	Enquiries@vosa.gov.uk

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