

**LONDON BOROUGH OF HILLINGDON**

**SUMMARY OF ISSUE SPECIFIC HEARING REPRESENTATIONS - ROAD SAFETY**

**HIGHWAYS ENGLAND'S RESPONSE**

**Hearing Day 2; Issue Specific Hearing; Road Safety**

ExA Question	Written response (provided at Hearing)	Additional comments/information as requested by ExA
<p><b>A. PRELIMINARY MATTERS</b></p>		
<p>1. In answer to our first round of questions REP2-002 TS6.4, the applicant provides a table to compare the risk of different operating systems. The actual performance of the M42 Active Traffic Management (ATM) pilot is indicated as having the lowest level of risk at 40% of the baseline 1. The predicted risk for the M4 All Lane Running (ALR) scheme is 82%. Can the applicant explain why the higher level of risk is acceptable for the M4 scheme?</p>	<p><i>LBH - no comment</i></p> <p><b><u>Highways England comment:</u></b></p> <p>The response to this question was provided at Deadline IV (Examination Reference REP4-002).</p>	

<p>2. In the event that there is evidence that an alternative proposal for the M4 Smart Motorway would offer a greater level of safety, can the applicant explain what led to the selection of the proposed scheme?</p>	<p><i>LBH- no comment</i></p> <p><b><u>Highways England comment:</u></b></p> <p>The response to this question was provided at Deadline IV (Examination Reference REP4-002).</p>	
<p>3. Would the level of risk be reduced if the national speed limit was not in force in off peak times with ALR? What experience is there of all lane running with the national speed limit?</p>	<p><i>LBH- no comment</i></p> <p><b><u>Highways England comment:</u></b></p> <p>The response to this question was provided at Deadline IV (Examination Reference REP4-002).</p>	
<p>4. When can the applicant produce the traffic safety monitoring data for the M25 J23-27 ALR scheme and compare its performance to the traffic safety performance before ALR was introduced?</p>	<p><i>HE advised that the traffic safety monitoring data for the M25 will not be available to present to the ExA until January 2016.</i></p> <p><i>LB Hillingdon have asked the applicants to review the initial documentation submitted with the M25 project to understand what the expected improvements to road safety had been predicted to be. These should then be compared to the actual findings following the first year of operation on the project. This would provide some comfort of whether the predictions provided are realistic and achievable.</i></p> <p><i>The ExA also suggested that in the event that the risk reduction which was predicted, is not achieved, a further DCO requirement should be included in the draft DCO to look at mechanisms to ensure this is rectified after annual reviews. The Council support this proposal to ensure adequate road safety following implementation of the scheme.</i></p> <p><b><u>Highways England Comment</u></b></p> <p>The response to question 4 in the hearing and submitted for Deadline IV (Examination Reference REP4-002) explained that the monitoring results from the initial all lane running (“ALR”) scheme on the M25 will provide important evidence to feed into the M4 Junctions 3 to 12 Smart Motorway scheme (the “Scheme”) safety assessment.</p> <p>The monitoring results will include consideration of the initial safety performance, which will</p>	

	<p>provide greater confidence in the predicted level of safety for the M4 J3-12 Scheme. Highways England hopes to be able to provide the Examination with a copy of the M25 J23 -27 twelve month evaluation report in due course.</p> <p>In relation to the proposal to have a safety requirement in the DCO, a paper was submitted for Deadline IV (Examination Reference REP4-002), which addressed the question of how the safety performance of the Scheme will be secured. It provided a summary which said that <i>'Highways England is confident of the hazard assessment approach undertaken for the Scheme (which has been proven on previous smart motorway schemes) and there are no Scheme-specific risks. Consequently, there are no grounds to believe the Scheme will not meet its safety objective. The requirement for Smart Motorways is to confirm that the road will be made no worse than the baseline by the introduction of the Scheme and the analysis undertaken for the Scheme shows a safety benefit is expected to result from implementation of the Scheme. The Highways England licence provides governance required and the assurance that Highways England has a legal duty to ensure the safety of the network'</i>. Post Opening Project Evaluation ("POPE") studies are undertaken to identify the impacts of all completed Highway England improvement schemes. The studies consider how accurate Highways England's forecasts were and, where possible, identify the reasons for discrepancies. The studies are also used by Highways England to inform the current and future appraisal methods and scheme delivery.</p> <p>The paper submitted at Deadline IV also explains that, should the monitoring data be outside acceptable tolerances, then Highways England will analyse the data to understand the root cause of any performance differences. This will include an understanding of how the performance impacts on the overall level of risk on the Scheme. Once the root cause of the problem is fully understood, general measures can then be identified as potentially suitable mitigation measures for application to the appropriate aspects of the Scheme (individually or in-combination) and will be applied to achieve the expected Scheme performance.</p>	
<p>5. What is the applicant's view of the RAC's experience of the all lane running and dynamic hard shoulder configurations, reported in its written representation at Deadline II REP2-029 – in particular, the alleged proven safety record of the dynamic hard shoulder configuration versus the</p>	<p><i>LBH- no comment</i></p> <p><b><u>Highways England comment:</u></b></p> <p>The response to this question was provided at Deadline IV (Examination Reference REP4-002).</p>	

<p>alleged unproven safety record of the all lane running configuration?</p>		
<p>6. When the scheme is operational, would the applicant explain why it is considered that the frequency of breakdowns in live lanes would be substantially less than the existing frequency of breakdowns on the hard shoulder? REP1-003, response no. 20</p>	<p><i>LBH queried why the applicants definition of 'breakdowns' currently included illegal stoppages on the hard shoulder. This was specifically raised because an illegal stoppage on the hard shoulder does not in itself lead to congestion and tailbacks on the road network which result from an accident or vehicular failure.</i></p> <p><i>The applicants current statement claims that ALR would generate substantially less breakdowns in live lanes than the current arrangement. Based on the applicants definition of 'breakdowns', it is not considered to be a like for like comparison and therefore the applicants assumption that the scheme will generate 'significantly less' breakdowns is not considered to be accurate.</i></p> <p><i>LBH requested that the current data on breakdowns was reviewed to remove illegal stoppages and should only relate to actual vehicle failures and accidents in order to provide a adequate comparison of the existing and proposed situation.</i></p> <p><b><u>Highways England Comment</u></b></p> <p>London Borough of Hillingdon has not provided any evidence to support its claims in relation to illegal stoppages causing congestion, or in contradiction of Highways England's assessments and figures.</p> <p>Stops that occur on the hard shoulder can be defined as discretionary stops (i.e. illegal stops) or breakdowns. On dual 3-lane motorways, stops that occur on the hard shoulder consist of breakdowns and discretionary stops. Discretionary stops (comfort stops and vehicle checks on the hard shoulder, i.e. illegal stops) outnumber breakdowns by between 8 and 10 times (ref: Evaluation of the Provision of Emergency Refuge Areas ("ERAs") Examination Reference REP4-002 – Appendix C). Illegal stoppages regularly occur on the network where there is a hard shoulder and the analysis for the Scheme needs to include these as the Scheme will alleviate a significant number of these stoppages. Although an illegal stop on the hard shoulder may not always result in congestion itself, stopping illegally on the hard shoulder increases the risk of a collision. The implication of converting the hard shoulder to a running lane is that the majority of stops that currently occur on the hard shoulder will be eliminated. As such, the Scheme has correctly included discretionary stops in its assessment.</p> <p>As explained at the Road Safety Issue Specific Hearing, it is expected that the frequency of breakdowns in live lanes will be substantially less than the existing frequency of breakdowns on the hard shoulder (the comment above from London Borough of Hillingdon states ‘than the current arrangement’ which is not correct as Highways England expects an increase in live lane breakdowns</p>	

	<p>compared to the existing M4). This is because a significant proportion of breakdowns will be able to get to an ERA. Experience from the initial smart motorway schemes suggests that in a case of a breakdown 50% of drivers will be able to get their vehicles to a place of safety (ref: Evaluation of the Provision of Emergency Refuge Areas (Examination Reference REP4-002 - Appendix C). Therefore, it is not correct to say that the Scheme is not considering a like for like comparison. When vehicles break down (i.e. not an illegal stop), half of them are expected to reach a place of safety.</p> <p>The analysis takes into account the fact that illegal stops outnumber breakdowns by between 8 and 10 times. It is noted that the Evaluation of the Provision of Emergency Refuge report (Examination Reference REP4-002 – Appendix C) recognises the evidence from the Bromford Viaduct, on the M6 motorway in Birmingham, which supports the view that many drivers are able to nurse a broken down vehicle up to a few kilometres in distance before stopping (in carriageway locations where drivers perhaps perceive themselves to be vulnerable). If Highways England was to remove illegal stops from the analysis, 50% of breakdowns would be expected to make it to a safe area of refuge and 50% would stop in a live lane. However, it is considered that the analysis needs to include both illegal stops and breakdowns to provide a true indication of the likely number of stops on the Scheme.</p> <p>It is also noted that the M42 Pilot found breakdowns approximately halved as detailed in 9.4.4 of the Engineering and Design Report (Application Document Reference Number 7-3, Examination Reference APP-096). The use of refuge areas for emergency purposes only will be encouraged by appropriate signing and driver education messages. The objective, therefore, is that siting the ERAs less frequently (when compared with the early smart motorway schemes) will result in the ERAs being used for illegal / inappropriate purposes more sparingly. Therefore, discretionary (illegal) stops will be reduced significantly as road users are more likely to only stop in an emergency.</p>	
<p>7. In the event of live lane stoppages as a result of a breakdown, can the applicant explain how quickly a response would be given to put control measures in place to prevent a collision, in both peak and off peak times?</p>	<p><i>LBH queried what percentage of the motorway is currently covered by CCTV at present to understand how the proposed level of coverage could be an improvement to the scheme.</i></p> <p><i>The applicants were unaware at the hearing of the existing level of CCTV coverage, but did advise that it is restricted to main motorway junctions.</i></p> <p><i>The applicant explained that the proposed CCTV will not be monitored at all times and is not therefore being installed as a precautionary tool. Motorists will still be required to call emergency services to report an incident which will allow the CCTV to more quickly locate the breakdown, in a reactionary manner. In peak times when there are more motorists on the road, it is expected by HE that reports of an incident will come through to HE quickly, however at off-peak times, when there are less motorists on the road, it can often take longer for an incident to be reported by a motorist and therefore the response times can be much longer.</i></p>	

*LBH queried whether other options, such as motion detection on the roads could be employed on the road, which would indicate when a lane/lanes had not been in use for a length of time to indicate that there may be a problem on the road. HE advised that no such system exists at present.*

**Highways England Comment**

A paper confirming the current CCTV coverage percentage on the Scheme (Do Minimum) was provided for Deadline IV (Examination Reference REP4-002 – Appendix A). The paper advises that there are 30 existing cameras, 15 are at junction sites and 15 are located within links. The Scheme will introduce full CCTV coverage, which provides approximately 100 additional cameras and is a significant improvement in the level of coverage currently on the M4 between junction 3 and junction 12. An assessment has not been undertaken to establish what the existing level of percentage coverage is on this stretch of the M4 as this is not necessary because the Scheme will introduce full coverage on the existing M4 motorway. The exact camera locations and quantity will be determined on completion of a “high level” CCTV survey. This high-level survey involves positioning a mobile camera in each of the proposed positions to confirm that they provide 100% visibility of the motorway. The survey commenced on 4<sup>th</sup> January 2016 and will take approximately two weeks to complete, subject to prevailing weather conditions. Confirmation of the number and location of CCTV cameras will be provided by 17<sup>th</sup> February 2016 (Deadline VII).

During peak times, when a vehicle breaks down motorway incident detection and automatic signalling (“MIDAS”) typically reacts within minutes as queues form behind a stopped vehicle. MIDAS provides the control room Operator with location information about where the queue is, so that the Operator can verify the exact location of the stopped vehicle through CCTV quickly (typically within minutes or less). During off peak periods, it is unlikely that the queue protection system will provide identification of a breakdown (because vehicles approaching the incident will change lane to travel past the breakdown and not slow down enough to result in reduced speed signals being displayed). Therefore, a breakdown during the off peak periods will rely on a 999 call, emergency roadside telephone (“ERT”) call or call from a Traffic Officer. Any live lane incident would be given an immediate response category by the Traffic Officer Service and emergency services. The response time, i.e. from the time the Operator has located the stopped vehicle, is the same during both the peak and off peak period. Consequently, it is not correct to say that the response time for off peak times will be longer than at peak times. What varies between peak and off-peak is the time taken between a vehicle stopping in a live lane and the control room Operator being aware of the stopped vehicle, which tends to be quicker during the peak periods.

With regard to whether a motion detection system could be deployed, there is no available system at present and as such, Highways England is not in a position to speculate on the merits or otherwise of such technology. However, the implementation of such a system may provide additional challenges and would require considerable work and design to ensure it meets its objective. During the peak

	<p>periods the system would provide very little benefit due to MIDAS already providing a similar function. During the off peak periods, there is likely to be considerable periods of time when no vehicles would travel past the motion detection system, but this would not necessarily mean there is a problem on the road. Operators would therefore have to spend considerable time looking at monitors for breakdowns which may not exist. The system would require a considerable number of detection points as the vehicle could break down straight after, or immediately before a detection point whilst other vehicles continue to travel past that point, seemingly as normal. Accordingly, this, would not indicate that there was a problem. Such a system would also increase the amount of maintenance on the road and would therefore increase the risk to road workers. Furthermore, the system would need to be designed to take into account different light and weather conditions.</p>	
<p>8. What are the road safety implications, of the emergency refuge areas being spaced at an average of 1.85 km intervals, compared with closer spacing intervals, especially if the spacing was such that at least one emergency refuge area was always visible to road users?</p>	<p><i>LBH- no comment</i></p> <p><b><u>Highways England comment:</u></b></p> <p>The response to this question was provided at Deadline IV (Examination Reference REP4-002).</p>	
<p>9. Do interested parties wish to highlight any other aspects of road safety, not already covered above?</p>	<p><i>LBH queried whether there was adequate distance in the ERAs to allow for a vehicle to accelerate back onto the motorway without causing disruption to the existing traffic flows. This is principally because the current hard shoulder allows a significant distance for motorists to pick up speed and not impede the existing flow on the motorway.</i></p> <p><b><u>Highways England Comment</u></b></p> <p>The Evaluation of the provision of Refuge Areas Report (Examination Reference REP4-002 – Appendix C) explains that the design of ERAs on Smart Motorway schemes allows for a vehicle to accelerate back on the motorway. The report states “<i>It is considered that the length of refuge area (100m) should be preserved, as prescribed in IAN 111 [Managed Motorways Hard Shoulder Running Design guidance]. This was based on a TD 69/07 Type B layout [Design Manual for Roads and Bridges - Volume 6, Section 3, Part 3, TD 69/07 The Locations and Layout of Lay-bys and Rest Areas], with entry / exit taper lengths reversed to maximise the length of acceleration of a vehicle in re-joining the motorway. The length and operation of the refuge area design was rigorously tested in a simulation at the test track at the Fire Service College in Moreton-in-Marsh and in practice on the</i></p>	

	<p><i>schemes implemented to date. It has met with the acceptance and ‘approval’ of stakeholders and the length can accommodate all the parties involved in vehicle remediation / recovery (including HGVs [heavy goods vehicles])”.</i> Therefore, the ERA design does provide an appropriate length for motorists to exit the ERA and join the running lane without impeding the existing traffic flow. If there was an issue with a vehicle, such as an HGV, needing additional space in order to accelerate and join the main carriageway then Operators have the option to set a lane closure upstream of the ERA to provide more room for the vehicle to leave the ERA and merge into lane 1 whilst managing traffic flows and safety concerns.</p>	
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